L Number	Hits	Search Text	DB	Time stamp
1	543	536/55.1	USPAT; US-PGPUB	2003/09/03 14:13
2	116	536/55.1 and chondroitin	USPAT; US-PGPUB	2003/09/03 14:52
3	15	(536/55.1 and chondroitin) and recombinant	USPAT; US-PGPUB	2003/09/03 14:15
4	96	(536/55.1 and chondroitin) and composition	USPAT; US-PGPUB	2003/09/03 14:26
5	65	((536/55.1 and chondroitin) and composition) and purified	USPAT; US-PGPUB	2003/09/03 14:27
6	26040	chondroitin polysaccharide	USPAT; US-PGPUB	2003/09/03 14:52
7	41812	chondroitin polysaccharide	USPAT; US-PGPUB; JPO; DERWENT	2003/09/03 14:52
8	4	(chondroitin polysaccharide) and chondroitin adj synthase adj gene	USPAT; US-PGPUB; JPO; DERWENT	2003/09/03 14:53
9	5360	chondroitin	USPAT; US-PGPUB; JPO; DERWENT	2003/09/03 14:54
10	4	chondroitin and chondroitin adj synthase adj gene	USPAT; US-PGPUB; JPO; DERWENT	2003/09/03 14:54
11	4	chondroitin adj synthase adj gene	USPAT; US-PGPUB; JPO; DERWENT	2003/09/03 14:55
12	8	chondroitin adj synthase	USPAT; US-PGPUB; JPO; DERWENT	2003/09/03 14:57
13	1	chondroitin adj synthetase	USPAT; US-PGPUB; JPO; DERWENT	2003/09/03 14:58

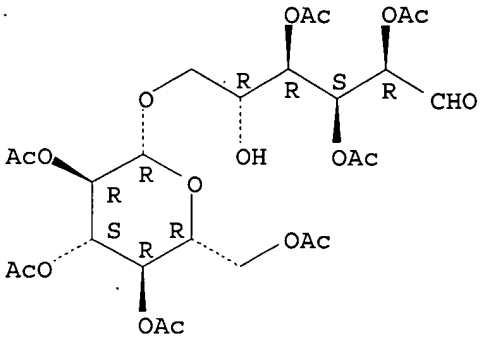
L20 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:992463 CAPLUS
DOCUMENT NUMBER: 124:37797
TITLE: **Polymers** of unsaturated carbohydrate derivatives for use in biomedical articles
INVENTOR(S): Bachmann, Frank; Lohmann, Dieter; Chabrecek, Peter
PATENT ASSIGNEE(S): Ciba-Geigy A.-G., Switz.
SOURCE: Eur. Pat. Appl., 23 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 668294	A1	19950823	EP 1995-810079	19950207
EP 668294	B1	19990818		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, NL, PT, SE				
AT 183517	E	19990915	AT 1995-810079	19950207
AU 9511644	A1	19950824	AU 1995-11644	19950208
AU 695525	B2	19980813		
CA 2142435	AA	19950816	CA 1995-2142435	19950213
FI 9500623	A	19950816	FI 1995-623	19950213
JP 07278204	A2	19951024	JP 1995-24108	19950213
US 5693768	A	19971202	US 1995-388006	19950213
ZA 9501169	A	19950815	ZA 1995-1169	19950214
NO 9500548	A	19950816	NO 1995-548	19950214
CN 1126213	A	19960710	CN 1995-101516	19950214
US 5856416	A	19990105	US 1997-867747	19970603

PRIORITY APPLN. INFO.: EP 1994-810084 19940215
US 1995-388006 19950213
OTHER SOURCE(S): CASREACT 124:37797; MARPAT 124:37797
GI For diagram(s), see printed CA Issue.
AB Carbohydrate derivs. R1(CO2A)m(O2CNHR)n(NHCO)pYZ (R1 = carbohydrate group subject to radical polymn.; A = C1-10 **alkylene**; R = C.ltoreq.20 org. diisocyanate radical; Y = O, NH; Z = mono- or **oligosaccharide**, cyclodextrin, anhydrosaccharide; m, n, p = 0, 1) can be used in prodn. of **polymers** useful for contact lenses and other biomedical articles, drug delivery systems, membranes, photoresists, etc. The monomers are obtained by selective reaction of an unprotected carbohydrate with an unsatd. compd., esp. an isocyanate, to form a monosubstituted deriv. Thus, contact lenses of poly(hydroxyethyl methacrylate) were surface treated with I [reaction product of 4'-(.beta.-hydroxyethoxy)-2-hydroxyprop-2-ylphenone and isophorone diisocyanate], then soaked in an aq. soln. of 6-O-carbamoylmethacryloylethyl-.alpha.,.alpha.-trehalose (prepn. given), purged to remove O, exposed to an Hg lamp, washed, and dried. The treated lenses showed improved hydrophilicity and water retention.

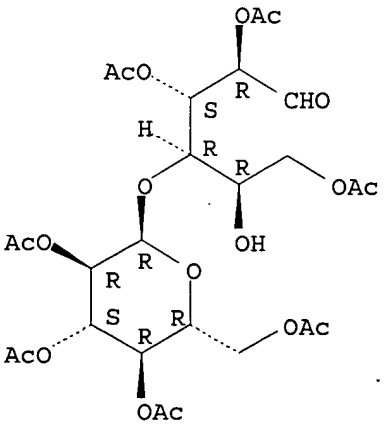
L24 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1975:479501 CAPLUS
DOCUMENT NUMBER: 83:79501
TITLE: Synthesis of **oligosaccharides** on polymeric **supports**. V. Selective cleavage by hydrazine of the anomeric acetyl groups of acetylated glycosyl residues
AUTHOR(S): Excoffier, Gerard; Gagnare, Didier; Utille, Jean P.
CORPORATE SOURCE: Cent. Rech. Macromol. Veg., Grenoble, Fr.
SOURCE: Carbohydrate Research (1975), 39(2), 368-73
CODEN: CRBRAT; ISSN: 0008-6215
DOCUMENT TYPE: Journal
LANGUAGE: French
IT **56253-33-9P 56285-96-2P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
RN 56253-33-9 CAPLUS
CN D-Glucose, 6-O-(2,3,4,6-tetra-O-acetyl-.beta.-D-glucopyranosyl)-, 2,3,4-triacetate (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 56285-96-2 CAPLUS
CN D-Glucose, 4-O-(2,3,4,6-tetra-O-acetyl-.alpha.-D-glucopyranosyl)-, 2,3,6-triacetate (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L7 ANSWER 7 OF 7 MEDLINE on STN
ACCESSION NUMBER: 97306353 MEDLINE
DOCUMENT NUMBER: 97306353 PubMed ID: 9162078
TITLE: Biosynthesis of chondroitin sulfate. Purification of glucuronosyl transferase II and use of photoaffinity labeling for characterization of the enzyme as an 80-kDa protein.
AUTHOR: Sugumaran G; Katsman M; Sunthankar P; Drake R R
CORPORATE SOURCE: Edith Nourse Rogers Memorial Veterans Hospital, Bedford, Massachusetts 01730, USA.
CONTRACT NUMBER: AR-41649 (NIAMS)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1997 May 30) 272 (22) 14399-403.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199706
ENTRY DATE: Entered STN: 19970716
Last Updated on STN: 19970716
Entered Medline: 19970627

AB A photoaffinity analogue, [beta-32P]5-azido-UDP-GlcA, was used to photolabel the enzymes that utilize UDP-GlcA in cartilage microsomes and rat liver microsomes. SDS-polyacrylamide gel electrophoresis analysis of photolabeled cartilage microsomes, which are specialized in chondroitin sulfate synthesis, showed a major radiolabeled band at 80 kDa and other minor radiolabeled bands near 40 and 60 kDa. Rat liver microsomes, which are enriched for enzymes of detoxification by glucuronidation, had a different pattern with multiple major labeled bands near 50-60 and 35 kDa. To determine that the photolabeled 80-kDa protein is the GlcA transferase II, we have purified the enzyme from cartilage microsomes. This membrane-bound enzyme, involved in the transfer of GlcA residues to non-reducing terminal GalNAc residues of the **chondroitin polymer**, has now been solubilized, stabilized, and then purified greater than 1350-fold by sequential chromatography on Q-Sepharose, heparin-Sepharose, and WGA-agarose. The purified enzyme exhibited a conspicuous silver-stained protein band on SDS-polyacrylamide gel electrophoresis that coincided with the major radiolabeled band of 80 kDa. SDS-polyacrylamide gel analysis of photoaffinity-labeled active fractions from the Q-Sepharose, heparin-Sepharose, and WGA-agarose also indicated only the single radiolabeled band at 80 kDa. Intensity of photolabeling in each of the fractions examined coincided with enzyme activity. The photolabeling of this 80-kDa protein was saturable with the photoprobe and could be inhibited by the addition of UDP-GlcA prior to the addition of the photoprobe. Thus, the photolabeling with [beta-32P]5-azido-UDP-GlcA has identified the GlcA transferase II as an 80-kDa protein. The purified enzyme was capable of transferring good amounts of GlcA residues to chondroitin-derived pentasaccharide with negligible transfer to pentasaccharides derived from hyaluronan or heparan.

L17 ANSWER 5 OF 5 MEDLINE on STN
ACCESSION NUMBER: 85203849 MEDLINE
DOCUMENT NUMBER: 85203849 PubMed ID: 3922754
TITLE: Two N-acetylgalactosaminyltransferase are involved in the biosynthesis of chondroitin sulfate.
AUTHOR: Rohrmann K; Niemann R; Buddecke E
SOURCE: EUROPEAN JOURNAL OF BIOCHEMISTRY, (1985 May 2) 148 (3) 463-9.
Journal code: 0107600. ISSN: 0014-2956.
PUB. COUNTRY: GERMANY, WEST: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198507
ENTRY DATE: Entered STN: 19900320
Last Updated on STN: 19900320
Entered Medline: 19850705

AB Two N-acetylgalactosaminyltransferases, designated I and II, have been **purified** from the microsomal fraction of calf arterial tissue and separated on Bio-Gel A. N-Acetylgalactosaminyltransferase I was **purified** 450-fold. It requires Mn2+ for maximal activity and transfers N-acetylgalactosamine residues from UDP-[1-3H]GalNAc in beta-glycosidic configuration to the non-reducing terminus of the acceptor substrates GlcA(beta 1-3)Gal(beta 1-3)Gal, GlcA(beta 1-3)Gal(beta 1-4)Glc and GlcA(beta 1-3)Gal. Even-numbered **chondroitin oligosaccharides** serve as acceptors for N-acetylgalactosaminyltransferase II, which transfers N-acetylgalactosamine from UDP-[1-3H]GalNAc to the non-reducing glucuronic acid residues of oligosaccharide acceptor substrates. Maximum transfer rates were obtained with a decasaccharide derived from chondroitin. Longer or shorter-chain **chondroitin oligosaccharides** are less effective acceptor substrates. All reaction products formed by N-acetylgalactosaminyltransferases I and II are substrates of beta-N-acetylhexosaminidase, which splits off the transferred [1-3H]GalNAc completely. In the microsomal fraction N-acetylgalactosaminyltransferase II had a 300-fold higher specific activity than N-acetylgalactosaminyltransferase I. In contrast to enzyme I, enzyme II loses much of its activity during the purification procedure and undergoes rapid thermodenaturation. GlcA-Gal-Gal is a characteristic sequence of the carbohydrate-protein linkage region of proteochondrioitin sulfate. The acceptor capacity of this trisaccharide suggests that N-acetylgalactosaminyltransferase I is involved in the synthesis of the carbohydrate-protein linkage region. Since N-acetylgalactosaminyltransferase II is highly specific for **chondroitin oligosaccharides**, we conclude that it participates in chain elongation during chondroitin sulfate synthesis.

L17 ANSWER 5 OF 5 MEDLINE on STN
ACCESSION NUMBER: 85203849 MEDLINE
DOCUMENT NUMBER: 85203849 PubMed ID: 3922754
TITLE: Two N-acetylgalactosaminyltransferase are involved in the biosynthesis of chondroitin sulfate.
AUTHOR: Rohrmann K; Niemann R; Buddecke E
SOURCE: EUROPEAN JOURNAL OF BIOCHEMISTRY, (1985 May 2) 148 (3) 463-9.
Journal code: 0107600. ISSN: 0014-2956.
PUB. COUNTRY: GERMANY, WEST: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198507
ENTRY DATE: Entered STN: 19900320
Last Updated on STN: 19900320
Entered Medline: 19850705

AB Two N-acetylgalactosaminyltransferases, designated I and II, have been **purified** from the microsomal fraction of calf arterial tissue and separated on Bio-Gel A. N-Acetylgalactosaminyltransferase I was **purified** 450-fold. It requires Mn2+ for maximal activity and transfers N-acetylgalactosamine residues from UDP-[1-3H]GalNAc in beta-glycosidic configuration to the non-reducing terminus of the acceptor substrates GlcA(beta 1-3)Gal(beta 1-3)Gal, GlcA(beta 1-3)Gal(beta 1-4)Glc and GlcA(beta 1-3)Gal. Even-numbered **chondroitin oligosaccharides** serve as acceptors for N-acetylgalactosaminyltransferase II, which transfers N-acetylgalactosamine from UDP-[1-3H]GalNAc to the non-reducing glucuronic acid residues of oligosaccharide acceptor substrates. Maximum transfer rates were obtained with a decasaccharide derived from chondroitin. Longer or shorter-chain **chondroitin oligosaccharides** are less effective acceptor substrates. All reaction products formed by N-acetylgalactosaminyltransferases I and II are substrates of beta-N-acetylhexosaminidase, which splits off the transferred [1-3H]GalNAc completely. In the microsomal fraction N-acetylgalactosaminyltransferase II had a 300-fold higher specific activity than N-acetylgalactosaminyltransferase I. In contrast to enzyme I, enzyme II loses much of its activity during the purification procedure and undergoes rapid thermodenaturation. GlcA-Gal-Gal is a characteristic sequence of the carbohydrate-protein linkage region of proteochondrioitin sulfate. The acceptor capacity of this trisaccharide suggests that N-acetylgalactosaminyltransferase I is involved in the synthesis of the carbohydrate-protein linkage region. Since N-acetylgalactosaminyltransferase II is highly specific for **chondroitin oligosaccharides**, we conclude that it participates in chain elongation during chondroitin sulfate synthesis.

L17 ANSWER 4 OF 5 MEDLINE on STN
ACCESSION NUMBER: 1999421651 MEDLINE
DOCUMENT NUMBER: 99421651 PubMed ID: 10491092
TITLE: Purification and characterization of fetal bovine serum beta-N-acetyl-D-galactosaminyltransferase and beta-D-glucuronyltransferase involved in chondroitin sulfate biosynthesis.
AUTHOR: Tsuchida K; Lind T; Kitagawa H; Lindahl U; Sugahara K; Lidholt K
CORPORATE SOURCE: Department of Biochemistry, Kobe Pharmaceutical University, Japan.
SOURCE: EUROPEAN JOURNAL OF BIOCHEMISTRY, (1999 Sep) 264 (2) 461-7. Journal code: 0107600. ISSN: 0014-2956.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199910
ENTRY DATE: Entered STN: 19991026
Last Updated on STN: 19991026
Entered Medline: 19991014

AB beta-N-Acetylgalactosaminyltransferase II and beta-glucuronyltransferase II, involved in chondroitin sulfate biosynthesis, transfer an N-acetylgalactosamine (GalNAc) and glucuronic acid (GlcA) residue, respectively, through beta-linkages to an acceptor **chondroitin oligosaccharide** derived from the repeating disaccharide region of chondroitin sulfate. They were copurified from fetal bovine serum approximately 2500-fold and 850-fold, respectively, by sequential chromatographies on Red A-agarose, phenyl-Sepharose, S-Sepharose and wheat germ agglutinin-agarose. Identical and inseparable chromatographic profiles of both glycosyltransferase activities obtained through the above chromatographic steps and gel filtration suggest that the **purified** enzyme activities are tightly coupled, which could imply a single enzyme with dual transferase activities; beta-N-acetylgalactosaminyltransferase and beta-glucuronyltransferase, reminiscent of the heparan sulfate polymerase reaction. However, when a polymerization reaction was performed in vitro with the **purified** serum enzyme preparation under the polymerization conditions recently developed for the chondroitin-synthesizing system, derived from human melanoma cells, each monosaccharide transfer took place, but no polymerization occurred. These results may suggest that the **purified** serum enzyme preparation contains both beta-N-acetylgalactosaminyltransferase II and beta-glucuronyltransferase II activities on a single polypeptide or on the respective polypeptides forming an enzyme complex, but is different from that obtained from melanoma cells in that it transfers a single GalNAc or GlcA residue but does not polymerize chondroitin.

L6 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2003:435234 CAPLUS
DOCUMENT NUMBER: 139:18389
TITLE: Chondroitin synthase gene from Pasteurella multocida and methods of making and using same
INVENTOR(S): Deangelis, Paul L.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 38 pp., Cont.-in-part of U.S. Ser. No. 437,277.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 12
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003104601	A1	20030605	US 2001-842484	20010425
US 6444447	B1	20020903	US 1999-437277	19991110
US 2003113845	A1	20030619	US 2002-217613	20020812

PRIORITY APPLN. INFO.:
US 1999-283402 B2 19990401
US 1999-437277 A2 19991110
US 2000-199538P P 20000425
US 1998-178851 B2 19981026
US 1998-107929P P 19981111

AB The present invention relates to a chondroitin synthase gene and methods of making and using same. In more particular, but not by way of limitation, the present invention relates to a chondroitin synthase gene from Pasteurella multocida and methods of isolating and using same. Addnl., the present invention relates to the use of unsulfated chondroitin and its prepn., as well as conversion into modified versions such as dermatan sulfate and chondroitin sulfate polymers.

L6 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 2002:888388 CAPLUS
DOCUMENT NUMBER: 138:382456
TITLE: Biosynthesis of Chondroitin/Dermatan Sulfate
AUTHOR(S): Silbert, Jeremiah E.; Sugumaran, Geetha
CORPORATE SOURCE: Dep. Veterans Affairs Med. Cent., Bedford, MA, 01730, USA
SOURCE: IUBMB Life (2002), 54(4), 177-186
CODEN: IULIF8; ISSN: 1521-6543
PUBLISHER: Taylor & Francis Inc.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review. Chondroitin sulfate and dermatan sulfate are synthesized as galactosaminoglycan polymers contg. N-acetylgalactosmine alternating with glucuronic acid. The sugar residues are **sulfated** to varying degrees and positions depending upon the tissue sources and varying conditions of formation. Epimerization of any of the glucuronic acid residues to iduronic acid at the polymer level constitutes the formation of dermatan sulfate. Chondroitin/dermatan glycosaminoglycans are covalently attached by a common tetrasaccharide sequence to the serine residues of core proteins while they are adherent to the inner surface of endoplasmic reticulum/Golgi vesicles. Addn. of the first sugar residue, xylose, to core proteins begins in the endoplasmic reticulum, followed by the addn. of two galactose residues by two distinct glycosyl transferases in the early cis/medial regions of the Golgi. The linkage tetrasaccharide is completed in the medial/trans Golgi by the addn. of the first glucuronic acid residue, followed by transfer of N-acetylgalactosamine to initiate the formation of a galactosaminoglycan rather than a glucosaminoglycan. This specific N-acetylgalactosaminyl transferase is different from the chondroitin synthase involved in generation of the

repeating disaccharide units to form the **chondroitin polymer**. Sulfation of the **chondroitin polymer** by specific sulfotransferases occurs as the polymer is being formed. All the enzymes in the pathway for synthesis have been cloned, with the exception of the glucuronyl to iduronyl epimerase involved in the formation of dermatan residues.

REFERENCE COUNT: 82 THERE ARE 82 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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> d his

     (FILE 'HOME' ENTERED AT 15:11:28 ON 03 SEP 2003)

     FILE 'CAPLUS, MEDLINE' ENTERED AT 15:11:36 ON 03 SEP 2003
L1             0 S CHRONDROITIN POLYMER
L2            10 S CHONDROITIN POLYMER
L3             0 S L2 AND COMPOSITION
L4             7 S L2 AND CHONDROITIN SYNTHASE
L5             3 S L2 AND SULFATED
L6             2 DUP REM L5 (1 DUPLICATE REMOVED)
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L7 ANSWER 7 OF 7 MEDLINE on STN
ACCESSION NUMBER: 97306353 MEDLINE
DOCUMENT NUMBER: 97306353 PubMed ID: 9162078
TITLE: Biosynthesis of chondroitin sulfate. Purification of glucuronosyl transferase II and use of photoaffinity labeling for characterization of the enzyme as an 80-kDa protein.
AUTHOR: Sugumaran G; Katsman M; Sunthankar P; Drake R R
CORPORATE SOURCE: Edith Nourse Rogers Memorial Veterans Hospital, Bedford, Massachusetts 01730, USA.
CONTRACT NUMBER: AR-41649 (NIAMS)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1997 May 30) 272 (22) 14399-403.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199706
ENTRY DATE: Entered STN: 19970716
Last Updated on STN: 19970716
Entered Medline: 19970627

AB A photoaffinity analogue, [beta-32P]5-azido-UDP-GlcA, was used to photolabel the enzymes that utilize UDP-GlcA in cartilage microsomes and rat liver microsomes. SDS-polyacrylamide gel electrophoresis analysis of photolabeled cartilage microsomes, which are specialized in chondroitin sulfate synthesis, showed a major radiolabeled band at 80 kDa and other minor radiolabeled bands near 40 and 60 kDa. Rat liver microsomes, which are enriched for enzymes of detoxification by glucuronidation, had a different pattern with multiple major labeled bands near 50-60 and 35 kDa. To determine that the photolabeled 80-kDa protein is the GlcA transferase II, we have purified the enzyme from cartilage microsomes. This membrane-bound enzyme, involved in the transfer of GlcA residues to non-reducing terminal GalNAc residues of the **chondroitin polymer**, has now been solubilized, stabilized, and then purified greater than 1350-fold by sequential chromatography on Q-Sepharose, heparin-Sepharose, and WGA-agarose. The purified enzyme exhibited a conspicuous silver-stained protein band on SDS-polyacrylamide gel electrophoresis that coincided with the major radiolabeled band of 80 kDa. SDS-polyacrylamide gel analysis of photoaffinity-labeled active fractions from the Q-Sepharose, heparin-Sepharose, and WGA-agarose also indicated only the single radiolabeled band at 80 kDa. Intensity of photolabeling in each of the fractions examined coincided with enzyme activity. The photolabeling of this 80-kDa protein was saturable with the photoprobe and could be inhibited by the addition of UDP-GlcA prior to the addition of the photoprobe. Thus, the photolabeling with [beta-32P]5-azido-UDP-GlcA has identified the GlcA transferase II as an 80-kDa protein. The purified enzyme was capable of transferring good amounts of GlcA residues to chondroitin-derived pentasaccharide with negligible transfer to pentasaccharides derived from hyaluronan or heparan.

L7 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2002:669614 CAPLUS
DOCUMENT NUMBER: 137:215875
TITLE: Polymer grafting with polysaccharide synthases for coating biomaterial surfaces
INVENTOR(S): DeAngelis, Paul L.
PATENT ASSIGNEE(S): The Board of Regents of the University of Oklahoma, USA
SOURCE: U.S., 37 pp., Cont.-in-part of U.S. Provisional Ser. No. 283,402.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 12
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6444447	B1	20020903	US 1999-437277	19991110
WO 2001080810	A2	20011101	WO 2001-US13395	20010425
WO 2001080810	A3	20020516		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2003104601	A1	20030605	US 2001-842484	20010425
US 2003077763	A1	20030424	US 2002-184485	20020627
US 2003113845	A1	20030619	US 2002-217613	20020812

PRIORITY APPLN. INFO.: US 1998-107929P P 19981111
US 1999-283402 A2 19990401
US 1998-178851 B2 19981026
US 1999-437277 A2 19991110
US 2000-199538P P 20000425

AB The present invention relates to methodol. for polymer grafting by a polysaccharide synthase and, more particularly, polymer grafting using the hyaluronate synthase from Pasteurella multocida. The present invention also relates to coatings for biomaterials wherein the coatings provide protective properties to the biomaterial and/or act as a bioadhesive. Such coatings could be applied to elec. devices, sensors, catheters and any device which may be contemplated for use within a mammal. The present invention further relates to drug delivery matrixes which are biocompatible and may comprise combinations of a biomaterial or a bioadhesive and a medicament or a medicament-contg. liposome. The biomaterial and/or bioadhesive is a hyaluronic acid polymer produced by a hyaluronate synthase from Pasteurella multocida. The present invention also relates to the creation of chimeric mols. contg. hyaluronic acid or hyaluronic acid-like chains attached to various compds. and esp. carbohydrates or hydroxyl contg. substances. The present invention also relates to a chondroitin synthase from Pasteurella multocida which is capable of producing polysaccharide polymers on an acceptor or primer mol.

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2002:478986 CAPLUS
DOCUMENT NUMBER: 137:243778
TITLE: Molecular cloning and characterization of chondroitin polymerase from Escherichia coli strain K4
AUTHOR(S): Ninomiya, Toshio; Sugiura, Nobuo; Tawada, Akira;

Sugimoto, Kazunori; Watanabe, Hideto; Kimata, Koji

CORPORATE SOURCE: Institute for Molecular Science of Medicine, Aichi Medical University, Nagakute, 480-1195, Japan

SOURCE: Journal of Biological Chemistry (2002), 277(24), 21567-21575
CODEN: JBCHA3; ISSN: 0021-9258

PUBLISHER: American Society for Biochemistry and Molecular Biology

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Escherichia coli strain K4 produces the K4 antigen, a capsule polysaccharide consisting of a chondroitin backbone (GlcUA .beta.(1-3)-GalNAc .beta.(1-4))n to which .beta.-fructose is linked at position C-3 of the GlcUA residue. The authors molecularly cloned region 2 of the K4 capsular gene cluster essential for biosynthesis of the polysaccharide, and the authors further identified a gene encoding a bifunctional glycosyltransferase that polymerizes the chondroitin backbone. The enzyme, contg. two conserved glycosyltransferase sites, showed 59 and 61% identity at the amino acid level to class 2 hyaluronan synthase and chondroitin synthase from Pasteurella multocida, resp. The sol. enzyme expressed in a bacterial expression system transferred GalNAc and GlcUA residues alternately, and polymd. the chondroitin chain up to a mol. mass of 20 kDa when chondroitin sulfate hexasaccharide was used as an acceptor. The enzyme exhibited apparent Km values for UDP-GlcUA and UDP-GalNAc of 3.44 and 31.6 .mu.M, resp., and absolutely required acceptors of chondroitin sulfate polymers and oligosaccharides at least longer than a tetrasaccharide. In addn., **chondroitin polymers** and oligosaccharides and hyaluronan polymers and oligosaccharides served as acceptors for chondroitin polymn., but dermatan sulfate and heparin did not. These results may lead to elucidation of the mechanism for chondroitin chain synthesis in both microorganisms and mammals.

REFERENCE COUNT: 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2000:335277 CAPLUS

DOCUMENT NUMBER: 133:9149

TITLE: Polymer grafting with polysaccharide synthases for coating biomaterial surfaces

INVENTOR(S): Deangelis, Paul L.

PATENT ASSIGNEE(S): The Board of Regents of the University of Oklahoma, USA

SOURCE: PCT Int. Appl., 86 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 12

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000027437	A2	20000518	WO 1999-US26501	19991110
WO 2000027437	A3	20000720		

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

AU 2000016139	A5	20000529	AU 2000-16139	19991110

EP 1129209	A2	20010905	EP 1999-958858	19991110
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002529064	T2	20020910	JP 2000-580666	19991110
US 2003113845	A1	20030619	US 2002-217613	20020812
PRIORITY APPLN. INFO.:			US 1998-107929P P	19981111
			US 1999-283402 A	19990401
			US 1998-178851 B2	19981026
			WO 1999-US26501 W	19991110

AB The present invention relates to methodol. for polymer grafting by a polysaccharide synthase and, more particularly, polymer grafting using the hyaluronate synthase from Pasteurella multocida . The present invention also relates to coatings for biomaterials wherein the coatings provide protective properties to the biomaterial and/or act as a bioadhesive. Such coatings could be applied to elec. devices, sensors, catheters and any device which may be contemplated for use within a mammal. The present invention further relates to drug delivery matrixes which are biocompatible and may comprise combinations of a biomaterial or a bioadhesive and a medicament or a medicament-contg. liposome. The biomaterial and/or bioadhesive is a hyaluronic acid polymer produced by a hyaluronate synthase from Pasteurella multocida . The present invention also relates to the creation of chimeric mols. contg. hyaluronic acid or hyaluronic acid-like chains attached to various compds. and esp. carbohydrates or hydroxyl contg. substances. The present invention also relates to a chondroitin synthase from Pasteurella multocida which is capable of producing polysaccharide polymers on an acceptor or primer mol.

L7 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER:	1997:358015 CAPLUS
DOCUMENT NUMBER:	127:92009
TITLE:	Biosynthesis of chondroitin sulfate. Purification of glucuronosyl transferase II and use of photoaffinity labeling for characterization of the enzyme as an 80-kDa protein
AUTHOR(S):	Sugumaran, Geetha; Katsman, Maya; Sunthankar, Prassana; Drake, Richard R.
CORPORATE SOURCE:	Edith Nourse Rogers Memorial Veterans Hospital, Bedford, MA, 01730, USA
SOURCE:	Journal of Biological Chemistry (1997), 272(22), 14399-14403 CODEN: JBCHA3; ISSN: 0021-9258
PUBLISHER:	American Society for Biochemistry and Molecular Biology
DOCUMENT TYPE:	Journal
LANGUAGE:	English

AB A photoaffinity analog, [.beta.-32P]5-azido-UDP-GlcA, was used to photolabel the enzymes that utilize UDP-GlcA in cartilage microsomes and rat liver microsomes. SDS-PAGE anal. of photolabeled cartilage microsomes, which are specialized in chondroitin sulfate synthesis, showed a major radiolabeled band at 80 kDa and other minor radiolabeled bands near 40 and 60 kDa. Rat liver microsomes, which are enriched for enzymes of detoxification by glucuronidation, had a different pattern with multiple major labeled bands near 50-60 and 35 kDa. To det. that the photolabeled 80-kDa protein is the GlcA transferase II, we have purified the enzyme from cartilage microsomes. This membrane-bound enzyme, involved in the transfer of GlcA residues to non-reducing terminal Gal-NAc residues of the **chondroitin polymer**, has now been solubilized, stabilized, and then purified greater than 1350-fold by sequential chromatog. on Q-Sepharose, heparin-Sepharose, and WGA-agarose. The purified enzyme exhibited a conspicuous silver-stained protein band on SDS-PAGE that coincided with the major radiolabeled band of 80 kDa. SDS-polyacrylamide gel anal. of photoaffinity-labeled active fractions from the Q-Sepharose, heparin-Sepharose, and WGA-agarose also indicated only the single radiolabeled band at 80 kDa. Intensity of photolabeling

in each of the fractions examd. coincided with enzyme activity. The photolabeling of this 80-kDa protein was saturable with the photoprobe and could be inhibited by the addn. of UCP-GlcA prior to the addn. of the photoprobe. Thus, the photolabeling with [.beta.-32P]5-azido-UDP-GlcA has identified the GlcA transferase II as an 80-kDa protein. The purified enzyme was capable of transferring good amts. of GlcA residues to chondroitin-derived pentasaccharide with negligible transfer to pentasaccharides derived from hyaluronan or heparan.

L7 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1968:492940 CAPLUS
DOCUMENT NUMBER: 69:92940
TITLE: Protein-chondroitine-keratan sulfate hybrid complex
AUTHOR(S): Bychkov, S. M.; Kharlamova, V. N.
CORPORATE SOURCE: Nauch.-Issled. Lab. Min. Zdravookhr., Moscow, USSR
SOURCE: Biokhimiya (Moscow) (1968), 33(4), 840-6
CODEN: BIOHAO; ISSN: 0320-9725
DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB A complex biopolymer formed by hybridization of protein-chondroitin-4-sulfate with keratan sulfate (I) was found in the cartilage from bovine tracheal rings. Proteolytic digestion with papain cleaved off polypetide-chondroitin-4-sulfate (II). Complete loss of all I from the biopolymer together with >90% loss of its protein component did not affect the ability of II to form a complex with hexaminocobalti-(III)-chloride, Rivanol, lysozyme, or acid-sol. collagen at certain pH value and ionic strength. Rivanol was not suitable for the fractionation of glucosamino glucans since it formed insol. complexes at pH 2 both with them and with the original complex polymer.

L7 ANSWER 6 OF 7 MEDLINE on STN
ACCESSION NUMBER: 2002330828 MEDLINE
DOCUMENT NUMBER: 22050655 PubMed ID: 11943778
TITLE: Molecular cloning and characterization of chondroitin polymerase from Escherichia coli strain K4.
AUTHOR: Ninomiya Toshio; Sugiura Nobuo; Tawada Akira; Sugimoto Kazunori; Watanabe Hideto; Kimata Koji
CORPORATE SOURCE: Institute for Molecular Science of Medicine, Aichi Medical University, Yazako, Nagakute, Aichi 480-1195, Japan.
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2002 Jun 14) 277 (24) 21567-75.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AB079602; GENBANK-X77617
ENTRY MONTH: 200207
ENTRY DATE: Entered STN: 20020621
Last Updated on STN: 20030105
Entered Medline: 20020725

AB Escherichia coli strain K4 produces the K4 antigen, a capsule polysaccharide consisting of a chondroitin backbone (GlcUA beta(1-3)-GalNAc beta(1-4))(n) to which beta-fructose is linked at position C-3 of the GlcUA residue. We molecularly cloned region 2 of the K4 capsular gene cluster essential for biosynthesis of the polysaccharide, and we further identified a gene encoding a bifunctional glycosyltransferase that polymerizes the chondroitin backbone. The enzyme, containing two conserved glycosyltransferase sites, showed 59 and 61% identity at the amino acid level to class 2 hyaluronan synthase and chondroitin synthase from Pasteurella multocida, respectively. The soluble enzyme expressed in a bacterial expression system transferred GalNAc and GlcUA residues alternately, and polymerized the chondroitin chain up to a molecular mass of 20 kDa when chondroitin sulfate

hexasaccharide was used as an acceptor. The enzyme exhibited apparent K(m) values for UDP-GlcUA and UDP-GalNAc of 3.44 and 31.6 microm, respectively, and absolutely required acceptors of chondroitin sulfate polymers and oligosaccharides at least longer than a tetrasaccharide. In addition, **chondroitin polymers** and oligosaccharides and hyaluronan polymers and oligosaccharides served as acceptors for chondroitin polymerization, but dermatan sulfate and heparin did not. These results may lead to elucidation of the mechanism for chondroitin chain synthesis in both microorganisms and mammals.

L7 ANSWER 7 OF 7 MEDLINE on STN
ACCESSION NUMBER: 97306353 MEDLINE
DOCUMENT NUMBER: 97306353 PubMed ID: 9162078
TITLE: Biosynthesis of chondroitin sulfate. Purification of glucuronosyl transferase II and use of photoaffinity labeling for characterization of the enzyme as an 80-kDa protein.
AUTHOR: Sugumaran G; Katsman M; Sunthankar P; Drake R R
CORPORATE SOURCE: Edith Nourse Rogers Memorial Veterans Hospital, Bedford, Massachusetts 01730, USA.
CONTRACT NUMBER: AR-41649 (NIAMS)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1997 May 30) 272 (22) 14399-403.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199706
ENTRY DATE: Entered STN: 19970716
Last Updated on STN: 19970716
Entered Medline: 19970627

AB A photoaffinity analogue, [beta-32P]5-azido-UDP-GlcA, was used to photolabel the enzymes that utilize UDP-GlcA in cartilage microsomes and rat liver microsomes. SDS-polyacrylamide gel electrophoresis analysis of photolabeled cartilage microsomes, which are specialized in chondroitin sulfate synthesis, showed a major radiolabeled band at 80 kDa and other minor radiolabeled bands near 40 and 60 kDa. Rat liver microsomes, which are enriched for enzymes of detoxification by glucuronidation, had a different pattern with multiple major labeled bands near 50-60 and 35 kDa. To determine that the photolabeled 80-kDa protein is the GlcA transferase II, we have purified the enzyme from cartilage microsomes. This membrane-bound enzyme, involved in the transfer of GlcA residues to non-reducing terminal GalNAc residues of the **chondroitin polymer**, has now been solubilized, stabilized, and then purified greater than 1350-fold by sequential chromatography on Q-Sepharose, heparin-Sepharose, and WGA-agarose. The purified enzyme exhibited a conspicuous silver-stained protein band on SDS-polyacrylamide gel electrophoresis that coincided with the major radiolabeled band of 80 kDa. SDS-polyacrylamide gel analysis of photoaffinity-labeled active fractions from the Q-Sepharose, heparin-Sepharose, and WGA-agarose also indicated only the single radiolabeled band at 80 kDa. Intensity of photolabeling in each of the fractions examined coincided with enzyme activity. The photolabeling of this 80-kDa protein was saturable with the photoprobe and could be inhibited by the addition of UDP-GlcA prior to the addition of the photoprobe. Thus, the photolabeling with [beta-32P]5-azido-UDP-GlcA has identified the GlcA transferase II as an 80-kDa protein. The purified enzyme was capable of transferring good amounts of GlcA residues to chondroitin-derived pentasaccharide with negligible transfer to pentasaccharides derived from hyaluronan or heparan.

L7 ANSWER 7 OF 7 MEDLINE on STN
ACCESSION NUMBER: 97306353 MEDLINE
DOCUMENT NUMBER: 97306353 PubMed ID: 9162078
TITLE: Biosynthesis of chondroitin sulfate. Purification of glucuronosyl transferase II and use of photoaffinity labeling for characterization of the enzyme as an 80-kDa protein.
AUTHOR: Sugumaran G; Katsman M; Sunthankar P; Drake R R
CORPORATE SOURCE: Edith Nourse Rogers Memorial Veterans Hospital, Bedford, Massachusetts 01730, USA.
CONTRACT NUMBER: AR-41649 (NIAMS)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1997 May 30) 272 (22) 14399-403.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199706
ENTRY DATE: Entered STN: 19970716
Last Updated on STN: 19970716
Entered Medline: 19970627

AB A photoaffinity analogue, [beta-32P]5-azido-UDP-GlcA, was used to photolabel the enzymes that utilize UDP-GlcA in cartilage microsomes and rat liver microsomes. SDS-polyacrylamide gel electrophoresis analysis of photolabeled cartilage microsomes, which are specialized in chondroitin sulfate synthesis, showed a major radiolabeled band at 80 kDa and other minor radiolabeled bands near 40 and 60 kDa. Rat liver microsomes, which are enriched for enzymes of detoxification by glucuronidation, had a different pattern with multiple major labeled bands near 50-60 and 35 kDa. To determine that the photolabeled 80-kDa protein is the GlcA transferase II, we have purified the enzyme from cartilage microsomes. This membrane-bound enzyme, involved in the transfer of GlcA residues to non-reducing terminal GalNAc residues of the **chondroitin polymer**, has now been solubilized, stabilized, and then purified greater than 1350-fold by sequential chromatography on Q-Sepharose, heparin-Sepharose, and WGA-agarose. The purified enzyme exhibited a conspicuous silver-stained protein band on SDS-polyacrylamide gel electrophoresis that coincided with the major radiolabeled band of 80 kDa. SDS-polyacrylamide gel analysis of photoaffinity-labeled active fractions from the Q-Sepharose, heparin-Sepharose, and WGA-agarose also indicated only the single radiolabeled band at 80 kDa. Intensity of photolabeling in each of the fractions examined coincided with enzyme activity. The photolabeling of this 80-kDa protein was saturable with the photoprobe and could be inhibited by the addition of UDP-GlcA prior to the addition of the photoprobe. Thus, the photolabeling with [beta-32P]5-azido-UDP-GlcA has identified the GlcA transferase II as an 80-kDa protein. The purified enzyme was capable of transferring good amounts of GlcA residues to chondroitin-derived pentasaccharide with negligible transfer to pentasaccharides derived from hyaluronan or heparan.

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=> d his

     (FILE 'HOME' ENTERED AT 15:11:28 ON 03 SEP 2003)

     FILE 'CAPLUS, MEDLINE' ENTERED AT 15:11:36 ON 03 SEP 2003
L1             0 S CHRONDROITIN POLYMER
L2            10 S CHONDROITIN POLYMER
L3             0 S L2 AND COMPOSITION
L4             7 S L2 AND CHONDROITIN SYNTHASE
L5             3 S L2 AND SULFATED
L6             2 DUP REM L5 (1 DUPLICATE REMOVED)
L7             7 S L2 NOT L5
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L9 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2003:610628 CAPLUS
TITLE: Novel human N-acetylgalactosamine transferase GalNAc-T that transfers N-acetylgalactosamine to glucuronic acid of glycosaminoglycan
INVENTOR(S): Narimatsu, Hisashi; Gotoh, Masanori
PATENT ASSIGNEE(S): National Institute of Advanced Industrial Science and Technology, Japan; Amersham Biosciences K.K.; Fujirebio Inc.
SOURCE: PCT Int. Appl., 61 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003064645	A1	20030807	WO 2003-JP1023	20030131

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: JP 2002-24202 A 20020131
JP 2002-299309 A 20021011

AB A novel human enzyme transferring N-acetylgalactosamine (GalNAc) to glucuronic acid of glycosaminoglycan, encoding cDNA, recombinant expression, are disclosed. Probes, primers, and microarrays and reagent kits contg. them, for detecting the gene, are claimed. The authors found a novel glycosyltransferase gene having a hypothetical .beta.1,4-galactosyltransferase motif by a BLAST search and cloned its full-length open reading frame using the 5'-rapid amplification of cDNA ends method. The truncated form was expressed in insect cells as a sol. enzyme. It transferred N-acetylgalactosamine, not galactose, to para-nitrophenyl-.beta.-glucuronic acid. The N-acetylgalactosamine-glucuronic acid linkage has been identified only in chondroitin sulfate; therefore, the authors examd. its chondroitin elongation and initiation activities. N-Acetylgalactosaminyltransferase activity was obsd. toward chondroitin poly- and oligosaccharides, chondroitin sulfate oligosaccharides, and linkage tetrasaccharide (GlcA-Gal-Gal-Xyl-O-methoxyphenyl), and the **chondroitin polysaccharide** and linkage tetrasaccharide were better acceptor substrates than the others. These results suggest that this enzyme has N-acetylgalactosaminyltransfera se activity in both the elongation and initiation of chondroitin sulfate synthesis.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2003:22694 CAPLUS
DOCUMENT NUMBER: 138:83382
TITLE: Polysaccharides with Helicobacter pylori receptor activity for treatment of gastric diseases
INVENTOR(S): Natunen, Jari; Miller-Podraza, Halina; Teneberg, Susann; Angstroem, Jonas; Karlsson, Karl-Anders
PATENT ASSIGNEE(S): Carbion Oy, Finland

SOURCE: PCT Int. Appl., 72 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003002128	A1	20030109	WO 2002-FI575	20020628
W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
FI 2001001403	A	20021230	FI 2001-1403	20010629
WO 2002056893	A1	20020725	WO 2002-FI43	20020118
W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRIORITY APPLN. INFO.: FI 2001-1403 A 20010629
WO 2002-FI43 A 20020118
FI 2001-118 A 20010119

AB The present invention relates to a compn. comprising a polysaccharide with Helicobacter pylori receptor activity and, optionally, an oligosaccharide receptor of Helicobacter pylori or an analog or a deriv. thereof and/or a gastric epithelium protecting compd. for use in the treatment or prophylaxis of any condition due to the presence of Helicobacter pylori. Binding assays revealed the isoreceptors and specificity of binding of glycolipids such as Neu5Gc.alpha.3Gal.beta.4GlcNAc.beta.3Gal.beta.4GlcNAc.beta.3Gal.beta.4Glc.beta.Cer.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 2002:764400 CAPLUS
DOCUMENT NUMBER: 138:233913
TITLE: Enzymatic Synthesis of Chondroitin with a Novel Chondroitin Sulfate N-Acetylgalactosaminyltransferase That Transfers N-Acetylgalactosamine to Glucuronic Acid in Initiation and Elongation of Chondroitin Sulfate Synthesis
AUTHOR(S): Gotoh, Masanori; Sato, Takashi; Akashima, Tomohiro; Iwasaki, Hiroko; Kameyama, Akihiko; Mochizuki, Hideo; Yada, Toshikazu; Inaba, Niro; Zhang, Yan; Kikuchi, Norihiro; Kwon, Yeon-Dae; Togayachi, Akira; Kudo, Takashi; Nishihara, Shoko; Watanabe, Hideto; Kimata, Koji; Narimatsu, Hisashi
CORPORATE SOURCE: Glycogene Function Team, Res. Cent. Glycosci., Natl. Inst. Adv. Ind. Sci. Technol., Ibaraki, 305-8586, Japan
SOURCE: Journal of Biological Chemistry (2002), 277(41), 38189-38196
CODEN: JBCHA3; ISSN: 0021-9258

PUBLISHER: American Society for Biochemistry and Molecular Biology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB We found a novel glycosyltransferase gene having a hypothetical .beta.1,4-galactosyltransferase motif (GenBankTM accession no.) by a BLAST search and cloned its full-length open reading frame using the 5'-rapid amplification of cDNA ends method. The truncated form was expressed in insect cells as a sol. enzyme. It transferred N-acetylgalactosamine, not galactose, to para-nitrophenyl-.beta.-glucuronic acid. The N-acetylgalactosamine-glucuronic acid linkage has been identified only in chondroitin sulfate; therefore, we examd. its chondroitin elongation and initiation activities. N-Acetylgalactosaminyltransferase activity was obsd. toward chondroitin poly- and oligosaccharides, chondroitin sulfate oligosaccharides, and linkage tetrasaccharide (GlcA-Gal-Gal-Xyl-O-methoxyphenyl), and the **chondroitin polysaccharide** and linkage tetrasaccharide were better acceptor substrates than the others. Northern blot anal. and quant. real-time PCR anal. revealed that its 4-kb transcripts were highly expressed in thyroid and placenta, although they were ubiquitously expressed in various tissues and cells. These results suggest that this enzyme has N-acetylgalactosaminyltransferase activity in both the elongation and initiation of chondroitin sulfate synthesis. Furthermore, we performed enzymic synthesis of chondroitin pentasaccharide in vitro. In one tube reaction with four enzymes, .beta.1,4-galactosyltransferase-VII, .beta.1,3-galactosyltransferase-VI, glucuronyltransferase-I, and this enzyme, and a synthetic xylose-peptide acceptor, the structure GalNAc-GlcA-Gal-Gal-Xyl-peptide was constructed. This is the first report of a chondroitin pentasaccharide constructed with recombinant glycosyltransferases in vitro.
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 2001:480308 CAPLUS
DOCUMENT NUMBER: 135:104525
TITLE: Evidence of block and randomly sequenced **chondroitin polysaccharides**: Sequential enzymatic digestion and quantification using ion trap tandem mass spectrometry
AUTHOR(S): Desaire, Heather; Sirich, Tammy L.; Leary, Julie A.
CORPORATE SOURCE: College of Chemistry, University of California Berkeley, Berkeley, CA, 94720, USA
SOURCE: Analytical Chemistry (2001), 73(15), 3513-3520
CODEN: ANCHAM; ISSN: 0003-2700
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A method for detg. the sequence type of the disaccharide repeat region of cartilage samples is introduced. The samples are sequentially subjected to selective and nonselective enzymic digestion, and the isomeric products from each step are quantified using tandem mass spectrometry. The two-step digestion/quantification protocol identifies whether the global makeup of the polymer is "alternating", "random", or "blocked" with respect to the two main components of the cartilage, 4- and 6-sulfated disaccharides. Using this procedure, the sequence type of two biol. isolated **chondroitin polysaccharides** was identified. The results for chondroitin sulfate A, isolated from bovine trachea, are consistent with the 4- and 6-sulfated disaccharides randomly distributed throughout the repeat region of the polysaccharide. For chondroitin sulfate C, shark cartilage, the 6-sulfated disaccharides are adjacent to each other to a larger extent than one would expect for a randomly distributed polymer, indicating that "blocks" of repeating disaccharides with the same sulfation site are present.
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1995:277252 CAPLUS
DOCUMENT NUMBER: 122:38941
TITLE: Polysaccharide-immobilized substrates for removal of glycoproteins
INVENTOR(S): Shimizu, Yoshihiro
PATENT ASSIGNEE(S): Toray Industries, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06261940	A2	19940920	JP 1993-53465	19930315
JP 3271357	B2	20020402		

PRIORITY APPLN. INFO.: JP 1993-53465 19930315
AB Carboxy-contg. polysaccharides are immobilized on substrates to be used for the removal of glycosylation products from the soln. For example, bovine serum albumin and glucose were dissolved in a phosphate buffer soln. and left at 37.degree. for 90 days. Addn. of a hyaluronate-immobilized EAH Sepharose 4B gel to the soln. resulted in a clear supernatant with a colored pptd. gel.

L9 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1969:26930 CAPLUS
DOCUMENT NUMBER: 70:26930
TITLE: Macromolecular polysaccharide proteins. III. Metabolic heterogeneity of chondroitin-4-sulfate-proteins and the metabolism of collagen in bovine cartilage
AUTHOR(S): Kresse, Hans; Buddecke, Eckhart
CORPORATE SOURCE: Univ. Muenster, Muenster, Fed. Rep. Ger.
SOURCE: Hoppe-Seyler's Zeitschrift fuer Physiologische Chemie (1968), 349(11), 1497-506
CODEN: HSZPAZ; ISSN: 0018-4888
DOCUMENT TYPE: Journal
LANGUAGE: German
AB Bovine nasal cartilage slices were incubated for 6 hrs. with labeled sulfate, glucose, glycine, or leucine. For at least 6 hrs. sulfate was incorporated into light protein polysaccharide, heavy protein polysaccharide, and protein polysaccharide residue, components of chondroitin sulfate protein, at different but const. rates. The specific radioactivities of the chondroitin sulfate from the 3 fractions were in the ratio of 1:1.8:0.7. After the incorporation of glucose, the specific radioactivities of these components were in the ratio of 1:4.9:1.3. The amino acids were incorporated into the protein components of light protein polysaccharide and urea-extd. heavy protein polysaccharide. The rate of incorporation of the amino acids into the protein components of the light protein polysaccharide and urea-treated heavy protein polysaccharide was 6-12 times higher than that into the collagen of bovine nasal cartilage. The specific radioactivity of the collagen fraction of heavy protein polysaccharide was 2-fold greater than that of the protein polysaccharide residue.

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d his

     (FILE 'HOME' ENTERED AT 15:11:28 ON 03 SEP 2003)

     FILE 'CAPLUS, MEDLINE' ENTERED AT 15:11:36 ON 03 SEP 2003
L1             0 S CHRONDROITIN POLYMER
L2            10 S CHONDROITIN POLYMER
L3             0 S L2 AND COMPOSITION
L4             7 S L2 AND CHONDROITIN SYNTHASE
L5             3 S L2 AND SULFATED
L6             2 DUP REM L5 (1 DUPLICATE REMOVED)
L7             7 S L2 NOT L5
L8             8 S CHONDROITIN POLYSACCHARIDE
L9             6 DUP REM L8 (2 DUPLICATES REMOVED)
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L12 ANSWER 11 OF 11 MEDLINE on STN
ACCESSION NUMBER: 2000420900 MEDLINE
DOCUMENT NUMBER: 20379058 PubMed ID: 10818104
TITLE: Identification and molecular cloning of a **chondroitin synthase** from Pasteurella multocida type F.
AUTHOR: DeAngelis P L; Padgett-McCue A J
CORPORATE SOURCE: Department of Biochemistry and Molecular Biology, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma 73104, USA.
CONTRACT NUMBER: GM56497 (NIGMS)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2000 Aug 4) 275 (31) 24124-9.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF195517
ENTRY MONTH: 200009
ENTRY DATE: Entered STN: 20000915
Last Updated on STN: 20000915
Entered Medline: 20000907

AB Pasteurella multocida Type F, the minor fowl cholera pathogen, produces an extracellular polysaccharide capsule that is a putative virulence factor. It was reported that the capsule was removed by treating microbes with **chondroitin** AC lyase. We found by acid hydrolysis that the polysaccharide contained galactosamine and glucuronic acid. We molecularly cloned a Type F polysaccharide synthase and characterized its enzymatic activity. The 965-residue enzyme, called P. multocida **chondroitin synthase** (pmCS), is 87% identical at the nucleotide and the amino acid level to the hyaluronan synthase, pmHAS, from P. multocida Type A. A **recombinant** Escherichia coli-derived truncated, soluble version of pmCS (residues 1-704) was shown to catalyze the repetitive addition of sugars from UDP-GalNAc and UDP-GlcUA to **chondroitin** oligosaccharide acceptors in vitro. Other structurally related sugar nucleotide precursors did not substitute in the elongation reaction. Polymer molecules composed of approximately 10(3) sugar residues were produced, as measured by gel filtration chromatography. The polysaccharide synthesized in vitro was sensitive to the action of **chondroitin** AC lyase but resistant to the action of hyaluronan lyase. This is the first report identifying a glycosyltransferase that forms a polysaccharide composed of **chondroitin** disaccharide repeats, [beta(1,4)GlcUA-beta(1,3)GalNAc](n). In analogy to known hyaluronan synthases, a single polypeptide species, pmCS, possesses both transferase activities.

L12 ANSWER 1 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2003:478357 CAPLUS
TITLE: Molecular Cloning of a **Chondroitin** Polymerizing Factor that Cooperates with **Chondroitin Synthase** for **Chondroitin** Polymerization
AUTHOR(S): Kitagawa, Hiroshi; Izumikawa, Tomomi; Uyama, Toru; Sugahara, Kazuyuki
CORPORATE SOURCE: Department of Biochemistry, Kobe Pharmaceutical University, Kobe, 658-8558, Japan
SOURCE: Journal of Biological Chemistry (2003), 278(26), 23666-23671
CODEN: JBCHA3; ISSN: 0021-9258
PUBLISHER: American Society for Biochemistry and Molecular Biology
DOCUMENT TYPE: Journal
LANGUAGE: English

AB We recently cloned human **chondroitin synthase** (ChSy) exhibiting the glucuronyltransferase-II (GlcATII) and N-acetylgalactosaminyltransferase-II (GalNAcTII) activities responsible for the biosynthesis of repeating disaccharide units of **chondroitin** sulfate, but **chondroitin** polymn. was not demonstrated in vitro using the **recombinant** ChSy. We report here that the **chondroitin** polymg. activity requires concomitant expression of a novel protein designated **chondroitin** polymg. factor (ChPF) with ChSy. The human ChPF consists of 775 amino acids with a type II transmembrane protein topol. The amino acid sequence displayed 23% identity to that of human ChSy. The expression of a sol. **recombinant** form of the protein in COS-1 cells produced a protein with little GlcAT-II or GalNAcT-II activity. In contrast, coexpression of the ChPF and ChSy yielded markedly augmented glycosyltransferase activities, whereas simple mixing of the two sep. expressed proteins did not. Moreover, using both UDP-glucuronic acid (GlcUA) and UDP-N-acetylgalactosamine (GalNAc) as sugar donors, **chondroitin** polymn. was demonstrated on the so-called glycosaminoglycan-protein linkage region tetrasaccharide sequence of .alpha.-thrombomodulin. These results suggested that the ChPF acts as a specific activating factor for ChSy in **chondroitin** polymn. The coding region of the ChPF was divided into four discrete exons and localized to chromosome 2q35-q36. Northern blot anal. revealed that the ChPF gene exhibited a markedly different expression pattern among various human tissues, which was similar to that of ChSy. Thus, the ChPF is required for **chondroitin** polymg. activity of mammalian ChSy.

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 2 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2003:443700 CAPLUS
DOCUMENT NUMBER: 139:32505
TITLE: Second human **chondroitin** N-acetylgalactosaminyltransferase **chondroitin** GalNAcT-2, encoding cDNA, and uses
INVENTOR(S): Sugawara, Kazuyuki; Kitagawa, Hiroyuki
PATENT ASSIGNEE(S): Shinsangyo Sozo Kenkyu Kiko, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 35 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

JP 2003164291 A2 20030610 JP 2001-367196 20011130
PRIORITY APPLN. INFO.: JP 2001-367196 20011130

AB A novel human **chondroitin** N-acetylgalactosaminyltransferase, **chondroitin** N-acetylgalactosaminyltransferase 2 (**chondroitin synthase** 2), its encoding cDNA, **recombinant** sol. fusion protein, **recombinant** expression, and use as reagent for N-acetylgalactosamine-contg. sugar chain, are disclosed. Hybridization probes contg. sequence complementary to the gene sequence for **chondroitin synthase** 2, are claimed. The authors identified a novel human **chondroitin** N-acetylgalactosaminyltransferase, designated **chondroitin** GalNAcT-2 after a BLAST anal. of the GenBankTM data base using the sequence of a previously described human **chondroitin** N-acetylgalactosaminyltransferase (**chondroitin** GalNAcT-1) as a probe. The new cDNA sequence contained an open reading frame encoding a protein of 542 amino acids with a type II transmembrane protein topol. The amino acid sequence displayed 60% identity to that of human **chondroitin** GalNAcT-1. Like **chondroitin** GalNAcT-1, the expression of a sol. form of the protein in COS-1 cells produced an active enzyme, which not only transferred .beta.1,4-N-acetylgalactosamine (GalNAc) from UDP-[3H]GalNAc to a polymer **chondroitin** representing growing **chondroitin** chains (.beta.-GalNActransferase II activity) but also to GlcUA.beta.1-3Gal.beta.1-O-C2H4NHCbz, a synthetic substrate for .beta.-GalNActransferase I that transfers the first GalNAc to the core tetrasaccharide in the protein-linkage region of **chondroitin** sulfate. In contrast, the tetrasaccharide serine (GlcUA.beta.1-3Gal.beta.1-3Gal.beta.1-4Xyl.beta.1-O-Ser) derived from the linkage region, which is an inert acceptor substrate for **chondroitin** GalNAcT-1, served as an acceptor substrate. The coding region of this enzyme was divided into seven discrete exons, which is similar to the genomic organization of the **chondroitin** GalNAcT-1 gene, and was localized to chromosome 10q11.22. Northern blot anal. revealed that the **chondroitin** GalNAcT-2 gene exhibited a ubiquitous but differing expression in human tissues, and the expression pattern differed from that of **chondroitin** GalNAcT-1. Thus, the authors demonstrated redundancy in the **chondroitin** GalNActransferases involved in the biosynthetic initiation and elongation of **chondroitin** sulfate, which is important for understanding the biosynthetic mechanisms leading to the selective chain assembly of **chondroitin**/dermatan sulfate on the linkage region tetrasaccharide common to various proteoglycans contg. **chondroitin**/dermatan sulfate and heparin/heparan sulfate chains.

L12 ANSWER 3 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2001:798014 CAPLUS
DOCUMENT NUMBER: 135:354689
TITLE: Pasteurella multocida **chondroitin** **synthase** gene, **recombinant** expression, and use
INVENTOR(S): De Angelis, Paul L.
PATENT ASSIGNEE(S): USA
SOURCE: PCT Int. Appl., 125 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 12
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001080810	A2	20011101	WO 2001-US13395	20010425
WO 2001080810	A3	20020516		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,

HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 6444447	B1	20020903	US 1999-437277	19991110
AU 2001053805	A5	20011107	AU 2001-53805	20010425
EP 1282684	A2	20030212	EP 2001-927344	20010425

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

PRIORITY APPLN. INFO.:	US 1999-437277	A2	19991110
	US 1998-107929P	P	19981111
	US 1999-283402	A2	19990401
	WO 2001-US13395	W	20010425

AB The present invention relates to a **chondroitin synthase** gene from Pasteurella multocida and methods of isolating, **recombinant** expression, and use in unsulfated **chondroitin** prepn. Addnl., the present invention relates to the use of unsulfated **chondroitin** and its prepn., as well as conversion into modified versions such as dermatan sulfate and **chondroitin** sulfate polymers. Pasteurella multocida Type F, the minor fowl cholera pathogen, produces an extracellular polysaccharide capsule that is a putative virulence factor. It was reported that the capsule was removed by treating microbes with **chondroitin** AC lyase. We found by acid hydrolysis that the polysaccharide contained galactosamine and glucuronic acid. We molecularly cloned a Type F polysaccharide synthase and characterized its enzymic activity. The 965-residue enzyme, called P. multocida **chondroitin synthase** (pmCS), is 87% identical at the nucleotide and the amino acid level to the hyaluronan synthase, pmHAS, from P. multocida Type A. A **recombinant** Escherichia coli-derived truncated, sol. version of pmCS (residues 1-704) was shown to catalyze the repetitive addn. of sugars from UDP-GalNAc and UDP-GlcUA to **chondroitin** oligosaccharide acceptors in vitro. Other structurally related sugar nucleotide precursors did not substitute in the elongation reaction. Polymer mols. composed of .apprx.103 sugar residues were produced, as measured by gel filtration chromatog. The polysaccharide synthesized in vitro was sensitive to the action of **chondroitin** AC lyase but resistant to the action of hyaluronan lyase. This is the first report identifying a glycosyltransferase that forms a polysaccharide composed of **chondroitin** disaccharide repeats, [.beta.(1,4)GlcUA-.beta.(1,3)GalNAc]n. In analogy to known hyaluronan synthases, a single polypeptide species, pmCS, possesses both transferase activities. Directly downstream of the pmCS gene a putative UDP-glucose dehydrogenase gene was identified.

L12 ANSWER 4 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER:	2001:783462 CAPLUS
DOCUMENT NUMBER:	136:289757
TITLE:	Molecular cloning and expression of a human **chondroitin synthase**
AUTHOR(S):	Kitagawa, Hiroshi; Uyama, Toru; Sugahara, Kazuyuki
CORPORATE SOURCE:	Department of Biochemistry, Kobe Pharmaceutical University, Kobe, 658-8558, Japan
SOURCE:	Journal of Biological Chemistry (2001), 276(42), 38721-38726 CODEN: JBCHA3; ISSN: 0021-9258
PUBLISHER:	American Society for Biochemistry and Molecular Biology
DOCUMENT TYPE:	Journal
LANGUAGE:	English

AB We have identified a human **chondroitin synthase** from the HUGE (human unidentified gene-encoded large proteins) protein data base by screening with two keywords: "one transmembrane domain" and

"galactosyltransferase family.". The identified protein consists of 802 amino acids with a type II transmembrane protein topol. The protein showed weak homol. to the .beta.1,3-galactosyltransferase family on the amino-terminal side and to the .beta.1,4-galactosyltransferase family on the carboxyl-terminal side. The expression of a sol. **recombinant** form of the protein in COS-1 cells produced an active enzyme, which transferred not only the glucuronic acid (GlcUA) from UDP-[14C]GlcUA but also N-acetylgalactosamine (GalNAc) from UDP-[3H]GalNAc to the polymer **chondroitin**. Identification of the reaction products demonstrated that the enzyme was **chondroitin synthase**, with both .beta.1,3-GlcUA transferase and .beta.1,4-GalNAc transferase activities. The coding region of the **chondroitin synthase** was divided into three discrete exons and localized to chromosome 15. Northern blot anal. revealed that the **chondroitin synthase** gene exhibited ubiquitous but markedly differential expression in the human tissues examd. Thus, we demonstrated that analogous to human heparan sulfate polymerases, the single polypeptide **chondroitin synthase** possesses two glycosyltransferase activities required for chain polymn.

REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 5 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2000:569635 CAPLUS

DOCUMENT NUMBER: 133:292768

TITLE: Identification and molecular cloning of a **chondroitin synthase** from Pasteurella multocida type F

AUTHOR(S): DeAngelis, Paul L.; Padgett-McCue, Amy J.

CORPORATE SOURCE: Department of Biochemistry and Molecular Biology, University of Oklahoma Health Sciences Center, Oklahoma City, OK, 73104, USA

SOURCE: Journal of Biological Chemistry (2000), 275(31), 24124-24129
CODEN: JBCHA3; ISSN: 0021-9258

PUBLISHER: American Society for Biochemistry and Molecular Biology

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Pasteurella multocida Type F, the minor fowl cholera pathogen, produces an extracellular polysaccharide capsule that is a putative virulence factor. It was reported that the capsule was removed by treating microbes with **chondroitin** AC lyase. We found by acid hydrolysis that the polysaccharide contained galactosamine and glucuronic acid. We molecularly cloned a Type F polysaccharide synthase and characterized its enzymic activity. The 965-residue enzyme, called P. multocida **chondroitin synthase** (pmCS), is 87% identical at the nucleotide and the amino acid level to the hyaluronan synthase, pmHAS, from P. multocida Type A. A **recombinant** Escherichia coli-derived truncated, sol. version of pmCS (residues 1-704) was shown to catalyze the repetitive addn. of sugars from UDP-GalNAc and UDP-GlcUA to **chondroitin** oligosaccharide acceptors in vitro. Other structurally related sugar nucleotide precursors did not substitute in the elongation reaction. Polymer mols. composed of .apprx.103 sugar residues were produced, as measured by gel filtration chromatog. The polysaccharide synthesized in vitro was sensitive to the action of **chondroitin** AC lyase but resistant to the action of hyaluronan lyase. This is the first report identifying a glycosyltransferase that forms a polysaccharide composed of **chondroitin** disaccharide repeats, [.beta.(1,4)GlcUA-.beta.(1,3)GalNAc]n. In analogy to known hyaluronan synthases, a single polypeptide species, pmCS, possesses both transferase activities.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 6 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1999:659266 CAPLUS
DOCUMENT NUMBER: 131:296218
TITLE: Nucleic acid encoding hyaluronan synthase from Pasteurella multocida
INVENTOR(S): Deangelis, Paul
PATENT ASSIGNEE(S): Board of Regents of the University of Oklahoma, USA
SOURCE: PCT Int. Appl., 121 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 12
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9951265	A1	19991014	WO 1999-US7289	19990401
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2326821	AA	19991014	CA 1999-2326821	19990401
AU 9935485	A1	19991025	AU 1999-35485	19990401
EP 1073460	A1	20010207	EP 1999-917339	19990401
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
BR 9909346	A	20010911	BR 1999-9346	19990401
JP 2002510648	T2	20020409	JP 2000-542035	19990401
US 2003113845	A1	20030619	US 2002-217613	20020812

PRIORITY APPLN. INFO.:

US 1998-80414P	P	19980402
US 1998-178851	A	19981026
US 1999-283402	B1	19990401
WO 1999-US7289	W	19990401

AB The present invention relates to a nucleic acid segment having a coding region segment encoding enzymically active hyaluronate synthase (PmHAS) from fowl cholera pathogen Type A Pasteurella multocida, and to the use of this nucleic acid segment in the prepn. of **recombinant** cells which produce hyaluronate synthase and its hyaluronic acid product. Hyaluronate is also known as hyaluronic acid or hyaluronan. Sections of the first 420 residues of PmHAS show some similarity to portions of mammalian UDP-GalNAc:polypeptide N-acetylgalactosaminyltransferase, but he last .apprx.340 residues of PmHAS are not significantly similar to other entries in the sequence databases. Thus, P. multocida HAS is unique and most likely the prototype of an entire new class of HAS. The measured Km values for PmHAS in crude membranes are about 2-3-fold lower for UDP-GlcNAc and UDP-GlcA than those obtained from HAS found in streptococcal membranes. A homologous gene for Type F Pasteurella multicida **chondroitin synthase** is also provided. The present invention also relates to the use of the PmHAS in constructing "knock-out" mutant strains of P. multocida for use in vaccinations. The present invention further relates to the use of the PmHAS in diagnostic tests in the field detns. of livestock P. multocida infection.
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 7 OF 11 MEDLINE on STN
ACCESSION NUMBER: 2003292145 MEDLINE
DOCUMENT NUMBER: 22703888 PubMed ID: 12716890

TITLE: Molecular cloning of a **chondroitin** polymerizing factor that cooperates with **chondroitin synthase** for **chondroitin** polymerization.
AUTHOR: Kitagawa Hiroshi; Izumikawa Tomomi; Uyama Toru; Sugahara Kazuyuki
CORPORATE SOURCE: Department of Biochemistry, Kobe Pharmaceutical University, Higashinada-ku, Kobe 658-8558, Japan.
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2003 Jun 27) 278 (26) 23666-71.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AB095813
ENTRY MONTH: 200308
ENTRY DATE: Entered STN: 20030624
Last Updated on STN: 20030821
Entered Medline: 20030820

AB We recently cloned human **chondroitin synthase** (ChSy) exhibiting the glucuronyltransferase-II (GlcATII) and N-acetylgalactosaminyltransferase-II (GalNAcTII) activities responsible for the biosynthesis of repeating disaccharide units of **chondroitin** sulfate, but **chondroitin** polymerization was not demonstrated in vitro using the **recombinant** ChSy. We report here that the **chondroitin** polymerizing activity requires concomitant expression of a novel protein designated **chondroitin** polymerizing factor (ChPF) with ChSy. The human ChPF consists of 775 amino acids with a type II transmembrane protein topology. The amino acid sequence displayed 23% identity to that of human ChSy. The expression of a soluble **recombinant** form of the protein in COS-1 cells produced a protein with little GlcAT-II or GalNAcT-II activity. In contrast, coexpression of the ChPF and ChSy yielded markedly augmented glycosyltransferase activities, whereas simple mixing of the two separately expressed proteins did not. Moreover, using both UDP-glucuronic acid (GlcUA) and UDP-N-acetylgalactosamine (GalNAc) as sugar donors, **chondroitin** polymerization was demonstrated on the so-called glycosaminoglycan-protein linkage region tetrasaccharide sequence of alpha-thrombomodulin. These results suggested that the ChPF acts as a specific activating factor for ChSy in **chondroitin** polymerization. The coding region of the ChPF was divided into four discrete exons and localized to chromosome 2q35-q36. Northern blot analysis revealed that the ChPF gene exhibited a markedly different expression pattern among various human tissues, which was similar to that of ChSy. Thus, the ChPF is required for **chondroitin** polymerizing activity of mammalian ChSy.

L12 ANSWER 8 OF 11 MEDLINE on STN
ACCESSION NUMBER: 2002620027 MEDLINE
DOCUMENT NUMBER: 22254828 PubMed ID: 12145278
TITLE: Molecular cloning and characterization of a novel **chondroitin** sulfate glucuronyltransferase that transfers glucuronic acid to N-acetylgalactosamine.
AUTHOR: Gotoh Masanori; Yada Toshikazu; Sato Takashi; Akashima Tomohiro; Iwasaki Hiroko; Mochizuki Hideo; Inaba Niro; Togayachi Akira; Kudo Takashi; Watanabe Hideto; Kimata Koji; Narimatsu Hisashi
CORPORATE SOURCE: Glycogene Function Team, Research Center for Glycoscience, National Institute of Advanced Industrial Science and Technology, Open Space Laboratory, C-2, 1-1-1 Umezono, Tsukuba, Ibaraki 305-8568, Japan.
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2002 Oct 11) 277 (41) 38179-88.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AB037823
ENTRY MONTH: 200211
ENTRY DATE: Entered STN: 20021017
Last Updated on STN: 20030105
Entered Medline: 20021125

AB We found a novel human gene (GenBank accession number, Kazusa DNA Research Institute KIAA1402) that possesses homology with **chondroitin synthase**. The full-length open reading frame consists of 772 amino acids and encodes a typical type II membrane protein. This enzyme had a domain containing beta 3-glycosyltransferase motifs, which might be a beta3-glucuronyltransferase domain, but no domain with beta 4-glycosyltransferase motifs, although both are found in **chondroitin synthase**. The putative catalytic domain was expressed in COS-7 cells as a soluble enzyme. Its glucuronyltransferase activity was observed when **chondroitin** and **chondroitin** sulfate polysaccharides and oligosaccharides were used as acceptor substrates. However, it was not detected when dermatan sulfate, hyaluronan, heparan sulfate, heparin, N-acetylheparosan, lactosamine tetrasaccharide, and linkage tri- and tetrasaccharide acceptors were employed. The reaction product, which was speculated to exhibit a GlcA beta 1-3GalNAc linkage structure at its non-reducing terminus, showed the following characteristics. 1) It was catabolized by beta-glucuronidase. 2) It was an acceptor for Escherichia coli K4 **chondroitin** polymerase (K4 **chondroitin** polymerase). 3) The product of K4 **chondroitin** polymerase was cleaved by chondroitinase ACII. On the other hand, no N-acetylgalactosaminyltransferase activity was detected toward any acceptors. Quantitative real time PCR analysis revealed that its transcripts were highly expressed in the placenta, small intestine, and pancreas, although they were ubiquitously expressed in various tissues and cell lines. This enzyme could play a role in the synthesis of **chondroitin** sulfate as a glucuronyltransferase.

L12 ANSWER 9 OF 11 MEDLINE on STN
ACCESSION NUMBER: 2002330828 MEDLINE
DOCUMENT NUMBER: 22050655 PubMed ID: 11943778
TITLE: Molecular cloning and characterization of **chondroitin** polymerase from Escherichia coli strain K4.
AUTHOR: Ninomiya Toshio; Sugiura Nobuo; Tawada Akira; Sugimoto Kazunori; Watanabe Hideto; Kimata Koji
CORPORATE SOURCE: Institute for Molecular Science of Medicine, Aichi Medical University, Yazako, Nagakute, Aichi 480-1195, Japan.
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2002 Jun 14) 277 (24) 21567-75.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AB079602; GENBANK-X77617
ENTRY MONTH: 200207
ENTRY DATE: Entered STN: 20020621
Last Updated on STN: 20030105
Entered Medline: 20020725

AB Escherichia coli strain K4 produces the K4 antigen, a capsule polysaccharide consisting of a **chondroitin** backbone (GlcUA beta(1-3)-GalNAc beta(1-4))(n) to which beta-fructose is linked at position C-3 of the GlcUA residue. We molecularly cloned region 2 of the K4 capsular gene cluster essential for biosynthesis of the polysaccharide, and we further identified a gene encoding a bifunctional glycosyltransferase that polymerizes the **chondroitin** backbone.

The enzyme, containing two conserved glycosyltransferase sites, showed 59 and 61% identity at the amino acid level to class 2 hyaluronan synthase and **chondroitin synthase** from Pasteurella multocida, respectively. The soluble enzyme expressed in a bacterial expression system transferred GalNAc and GlcUA residues alternately, and polymerized the **chondroitin** chain up to a molecular mass of 20 kDa when **chondroitin** sulfate hexasaccharide was used as an acceptor. The enzyme exhibited apparent K(m) values for UDP-GlcUA and UDP-GalNAc of 3.44 and 31.6 microm, respectively, and absolutely required acceptors of **chondroitin** sulfate polymers and oligosaccharides at least longer than a tetrasaccharide. In addition, **chondroitin** polymers and oligosaccharides and hyaluronan polymers and oligosaccharides served as acceptors for **chondroitin** polymerization, but dermatan sulfate and heparin did not. These results may lead to elucidation of the mechanism for **chondroitin** chain synthesis in both microorganisms and mammals.

L12 ANSWER 10 OF 11 MEDLINE on STN
ACCESSION NUMBER: 2001553876 MEDLINE
DOCUMENT NUMBER: 21486534 PubMed ID: 11514575
TITLE: Molecular cloning and expression of a human **chondroitin synthase**.
AUTHOR: Kitagawa H; Uyama T; Sugahara K
CORPORATE SOURCE: Department of Biochemistry, Kobe Pharmaceutical University, Higashinada-ku, Kobe 658-8558, Japan.
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2001 Oct 19) 276 (42) 38721-6.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200112
ENTRY DATE: Entered STN: 20011016
Last Updated on STN: 20030105
Entered Medline: 20011204

AB We have identified a human **chondroitin synthase** from the HUGE (human unidentified gene-encoded large proteins) protein data base by screening with two keywords: "one transmembrane domain" and "galactosyltransferase family." The identified protein consists of 802 amino acids with a type II transmembrane protein topology. The protein showed weak homology to the beta1,3-galactosyltransferase family on the amino-terminal side and to the beta1,4-galactosyltransferase family on the carboxyl-terminal side. The expression of a soluble **recombinant** form of the protein in COS-1 cells produced an active enzyme, which transferred not only the glucuronic acid (GlcUA) from UDP-[(14)C]GlcUA but also N-acetylgalactosamine (GalNAc) from UDP-[(3)H]GalNAc to the polymer **chondroitin**. Identification of the reaction products demonstrated that the enzyme was **chondroitin synthase**, with both beta1,3-GlcUA transferase and beta1,4-GalNAc transferase activities. The coding region of the **chondroitin synthase** was divided into three discrete exons and localized to chromosome 15. Northern blot analysis revealed that the **chondroitin synthase** gene exhibited ubiquitous but markedly differential expression in the human tissues examined. Thus, we demonstrated that analogous to human heparan sulfate polymerases, the single polypeptide **chondroitin synthase** possesses two glycosyltransferase activities required for chain polymerization.

L12 ANSWER 11 OF 11 MEDLINE on STN
ACCESSION NUMBER: 2000420900 MEDLINE
DOCUMENT NUMBER: 20379058 PubMed ID: 10818104
TITLE: Identification and molecular cloning of a **chondroitin synthase** from Pasteurella

multocida type F.

AUTHOR: DeAngelis P L; Padgett-McCue A J
CORPORATE SOURCE: Department of Biochemistry and Molecular Biology, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma 73104, USA.
CONTRACT NUMBER: GM56497 (NIGMS)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2000 Aug 4) 275 (31) 24124-9.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF195517
ENTRY MONTH: 200009
ENTRY DATE: Entered STN: 20000915
Last Updated on STN: 20000915
Entered Medline: 20000907

AB Pasteurella multocida Type F, the minor fowl cholera pathogen, produces an extracellular polysaccharide capsule that is a putative virulence factor. It was reported that the capsule was removed by treating microbes with **chondroitin** AC lyase. We found by acid hydrolysis that the polysaccharide contained galactosamine and glucuronic acid. We molecularly cloned a Type F polysaccharide synthase and characterized its enzymatic activity. The 965-residue enzyme, called P. multocida **chondroitin synthase** (pmCS), is 87% identical at the nucleotide and the amino acid level to the hyaluronan synthase, pmHAS, from P. multocida Type A. A **recombinant** Escherichia coli-derived truncated, soluble version of pmCS (residues 1-704) was shown to catalyze the repetitive addition of sugars from UDP-GalNAc and UDP-GlcUA to **chondroitin** oligosaccharide acceptors in vitro. Other structurally related sugar nucleotide precursors did not substitute in the elongation reaction. Polymer molecules composed of approximately 10(3) sugar residues were produced, as measured by gel filtration chromatography. The polysaccharide synthesized in vitro was sensitive to the action of **chondroitin** AC lyase but resistant to the action of hyaluronan lyase. This is the first report identifying a glycosyltransferase that forms a polysaccharide composed of **chondroitin** disaccharide repeats, [beta(1,4)GlcUA-beta(1,3)GalNAc](n). In analogy to known hyaluronan synthases, a single polypeptide species, pmCS, possesses both transferase activities.

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(FILE 'HOME' ENTERED AT 15:11:28 ON 03 SEP 2003)

FILE 'CAPLUS, MEDLINE' ENTERED AT 15:11:36 ON 03 SEP 2003

L1	0	S	CHRONDROITIN POLYMER
L2	10	S	CHONDROITIN POLYMER
L3	0	S	L2 AND COMPOSITION
L4	7	S	L2 AND CHONDROITIN SYNTHASE
L5	3	S	L2 AND SULFATED
L6	2		DUP REM L5 (1 DUPLICATE REMOVED)
L7	7	S	L2 NOT L5
L8	8	S	CHONDROITIN POLYSACCHARIDE
L9	6		DUP REM L8 (2 DUPLICATES REMOVED)
L10	23094	S	CHONDROITIN
L11	35	S	L10 AND CHONDROITIN SYNTHASE
L12	11	S	L11 AND RECOMBINANT
L13	24	S	L11 NOT L12
L14	10	S	L13 AND PASTEURELLA

L17 ANSWER 5 OF 5 MEDLINE on STN
ACCESSION NUMBER: 85203849 MEDLINE
DOCUMENT NUMBER: 85203849 PubMed ID: 3922754
TITLE: Two N-acetylgalactosaminyltransferase are involved in the biosynthesis of chondroitin sulfate.
AUTHOR: Rohrmann K; Niemann R; Buddecke E
SOURCE: EUROPEAN JOURNAL OF BIOCHEMISTRY, (1985 May 2) 148 (3) 463-9.
Journal code: 0107600. ISSN: 0014-2956.
PUB. COUNTRY: GERMANY, WEST: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198507
ENTRY DATE: Entered STN: 19900320
Last Updated on STN: 19900320
Entered Medline: 19850705

AB Two N-acetylgalactosaminyltransferases, designated I and II, have been **purified** from the microsomal fraction of calf arterial tissue and separated on Bio-Gel A. N-Acetylgalactosaminyltransferase I was **purified** 450-fold. It requires Mn2+ for maximal activity and transfers N-acetylgalactosamine residues from UDP-[1-3H]GalNAc in beta-glycosidic configuration to the non-reducing terminus of the acceptor substrates GlcA(beta 1-3)Gal(beta 1-3)Gal, GlcA(beta 1-3)Gal(beta 1-4)Glc and GlcA(beta 1-3)Gal. Even-numbered **chondroitin oligosaccharides** serve as acceptors for N-acetylgalactosaminyltransferase II, which transfers N-acetylgalactosamine from UDP-[1-3H]GalNAc to the non-reducing glucuronic acid residues of oligosaccharide acceptor substrates. Maximum transfer rates were obtained with a decasaccharide derived from chondroitin. Longer or shorter-chain **chondroitin oligosaccharides** are less effective acceptor substrates. All reaction products formed by N-acetylgalactosaminyltransferases I and II are substrates of beta-N-acetylhexosaminidase, which splits off the transferred [1-3H]GalNAc completely. In the microsomal fraction N-acetylgalactosaminyltransferase II had a 300-fold higher specific activity than N-acetylgalactosaminyltransferase I. In contrast to enzyme I, enzyme II loses much of its activity during the purification procedure and undergoes rapid thermodenaturation. GlcA-Gal-Gal is a characteristic sequence of the carbohydrate-protein linkage region of proteochondrioitin sulfate. The acceptor capacity of this trisaccharide suggests that N-acetylgalactosaminyltransferase I is involved in the synthesis of the carbohydrate-protein linkage region. Since N-acetylgalactosaminyltransferase II is highly specific for **chondroitin oligosaccharides**, we conclude that it participates in chain elongation during chondroitin sulfate synthesis.

L17 ANSWER 4 OF 5 MEDLINE on STN
ACCESSION NUMBER: 1999421651 MEDLINE
DOCUMENT NUMBER: 99421651 PubMed ID: 10491092
TITLE: Purification and characterization of fetal bovine serum beta-N-acetyl-D-galactosaminyltransferase and beta-D-glucuronyltransferase involved in chondroitin sulfate biosynthesis.
AUTHOR: Tsuchida K; Lind T; Kitagawa H; Lindahl U; Sugahara K; Lidholt K
CORPORATE SOURCE: Department of Biochemistry, Kobe Pharmaceutical University, Japan.
SOURCE: EUROPEAN JOURNAL OF BIOCHEMISTRY, (1999 Sep) 264 (2) 461-7. Journal code: 0107600. ISSN: 0014-2956.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199910
ENTRY DATE: Entered STN: 19991026
Last Updated on STN: 19991026
Entered Medline: 19991014

AB beta-N-Acetylgalactosaminyltransferase II and beta-glucuronyltransferase II, involved in chondroitin sulfate biosynthesis, transfer an N-acetylgalactosamine (GalNAc) and glucuronic acid (GlcA) residue, respectively, through beta-linkages to an acceptor **chondroitin oligosaccharide** derived from the repeating disaccharide region of chondroitin sulfate. They were copurified from fetal bovine serum approximately 2500-fold and 850-fold, respectively, by sequential chromatographies on Red A-agarose, phenyl-Sepharose, S-Sepharose and wheat germ agglutinin-agarose. Identical and inseparable chromatographic profiles of both glycosyltransferase activities obtained through the above chromatographic steps and gel filtration suggest that the **purified** enzyme activities are tightly coupled, which could imply a single enzyme with dual transferase activities; beta-N-acetylgalactosaminyltransferase and beta-glucuronyltransferase, reminiscent of the heparan sulfate polymerase reaction. However, when a polymerization reaction was performed in vitro with the **purified** serum enzyme preparation under the polymerization conditions recently developed for the chondroitin-synthesizing system, derived from human melanoma cells, each monosaccharide transfer took place, but no polymerization occurred. These results may suggest that the **purified** serum enzyme preparation contains both beta-N-acetylgalactosaminyltransferase II and beta-glucuronyltransferase II activities on a single polypeptide or on the respective polypeptides forming an enzyme complex, but is different from that obtained from melanoma cells in that it transfers a single GalNAc or GlcA residue but does not polymerize chondroitin.

L17 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1981:116374 CAPLUS
DOCUMENT NUMBER: 94:116374
TITLE: Preparation and circular dichroism analysis of sodium hyaluronate oligosaccharides and chondroitin
AUTHOR(S): Cowman, Mary K.; Balazs, Endre A.; Bergmann, Carl W.; Meyer, Karl
CORPORATE SOURCE: Coll. Physicians Surg., Columbia Univ., New York, NY, 10032, USA
SOURCE: Biochemistry (1981), 20(5), 1379-85
CODEN: BICHAW; ISSN: 0006-2960
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Na hyaluronate was cleaved into a homologous series of oligosaccharides by the action of bovine testicular hyaluronidase (EC 3.2.1.35), an endo-.beta.-hexosaminidase. Digestion conditions and gel-filtration chromatog. fractionation were optimized to produce oligosaccharides, clearly separable into peaks corresponding to 1-23 disaccharide units of the type D-glucuronosyl-N-acetyl-D-glucosamine. The chromatog. method was also employed for the purifn. of a 2nd homologous group of oligosaccharides, with the reversed sequence of monosaccharide units, produced by the action of leech hyaluronidase (EC 3.2.1.36), an endo-.beta.-glucuronidase. CD anal. (in the 200-250-nm range) of the oligosaccharides showed that the CD spectrum of hyaluronate in aq. soln. at neutral pH does not reflect to any substantial degree a polymer conformation which requires cooperative interaction between several repeating residues for stabilization. The enhanced CD properties of hyaluronate relative to monosaccharides are primarily related to the existence of the .beta.-1,4 linkage from N-acetyl-D-glucosamine to D-glucuronate. Chondroitin, the N-acetyl-D-galactosamine analog of hyaluronate, was prepd. by chem. desulfation of chondroitin 4- and 6-sulfates. The **purified** product had a mol. wt. range of 4000-8000 (10-20 disaccharide units). It was digested with testicular hyaluronidase, and the split products were isolated by gel filtration. In contrast to hyaluronate, the cleavage products included both the preponderant analogous repeating disaccharide multiples with N-acetyl-D-galactosamine at the reducing end and smaller quantities of oligosaccharides composed of an odd no. of monosaccharides. These latter products were presumably derived from the ends of the shortened chondroitin chains, resulting from methanolysis during the desulfation and alk. elimination of reducing hexosamines. CD spectroscopic anal. of chondroitin relative to its constituent monosaccharides showed that this glycosaminoglycan does not share the structural feature which results in substantially enhanced CD properties for hyaluronate. A hypothesis relating the CD properties of N-acetylated hexosamines in oligo- and polysaccharides to the dihedral angle about the C-O bond at C3 may explain the CD dependence on both the hexosaminidic linkage and hexosamine configuration at C4.

L17 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1981:116374 CAPLUS
DOCUMENT NUMBER: 94:116374
TITLE: Preparation and circular dichroism analysis of sodium hyaluronate oligosaccharides and chondroitin
AUTHOR(S): Cowman, Mary K.; Balazs, Endre A.; Bergmann, Carl W.; Meyer, Karl
CORPORATE SOURCE: Coll. Physicians Surg., Columbia Univ., New York, NY, 10032, USA
SOURCE: Biochemistry (1981), 20(5), 1379-85
CODEN: BICHAW; ISSN: 0006-2960
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Na hyaluronate was cleaved into a homologous series of oligosaccharides by the action of bovine testicular hyaluronidase (EC 3.2.1.35), an endo-.beta.-hexosaminidase. Digestion conditions and gel-filtration chromatog. fractionation were optimized to produce oligosaccharides, clearly separable into peaks corresponding to 1-23 disaccharide units of the type D-glucuronosyl-N-acetyl-D-glucosamine. The chromatog. method was also employed for the purifn. of a 2nd homologous group of oligosaccharides, with the reversed sequence of monosaccharide units, produced by the action of leech hyaluronidase (EC 3.2.1.36), an endo-.beta.-glucuronidase. CD anal. (in the 200-250-nm range) of the oligosaccharides showed that the CD spectrum of hyaluronate in aq. soln. at neutral pH does not reflect to any substantial degree a polymer conformation which requires cooperative interaction between several repeating residues for stabilization. The enhanced CD properties of hyaluronate relative to monosaccharides are primarily related to the existence of the .beta.-1,4 linkage from N-acetyl-D-glucosamine to D-glucuronate. Chondroitin, the N-acetyl-D-galactosamine analog of hyaluronate, was prepd. by chem. desulfation of chondroitin 4- and 6-sulfates. The **purified** product had a mol. wt. range of 4000-8000 (10-20 disaccharide units). It was digested with testicular hyaluronidase, and the split products were isolated by gel filtration. In contrast to hyaluronate, the cleavage products included both the preponderant analogous repeating disaccharide multiples with N-acetyl-D-galactosamine at the reducing end and smaller quantities of oligosaccharides composed of an odd no. of monosaccharides. These latter products were presumably derived from the ends of the shortened chondroitin chains, resulting from methanolysis during the desulfation and alk. elimination of reducing hexosamines. CD spectroscopic anal. of chondroitin relative to its constituent monosaccharides showed that this glycosaminoglycan does not share the structural feature which results in substantially enhanced CD properties for hyaluronate. A hypothesis relating the CD properties of N-acetylated hexosamines in oligo- and polysaccharides to the dihedral angle about the C-O bond at C3 may explain the CD dependence on both the hexosaminidic linkage and hexosamine configuration at C4.

17 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1999:591819 CAPLUS
DOCUMENT NUMBER: 131:296939
TITLE: Purification and characterization of fetal bovine serum .beta.-N-acetyl-D-galactosaminyltransferase and .beta.-D-glucuronyltransferase involved in chondroitin sulfate biosynthesis
AUTHOR(S): Tsuchida, Kazunori; Lind, Thomas; Kitagawa, Hiroshi; Lindahl, Ulf; Sugahara, Kazuyuki; Lidholt, Kerstin
CORPORATE SOURCE: Department of Biochemistry, Kobe Pharmaceutical University, Kobe, 658-8558, Japan
SOURCE: European Journal of Biochemistry (1999), 264(2), 461-467
CODEN: EJBCAI; ISSN: 0014-2956
PUBLISHER: Blackwell Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Chondroitin .beta.-acetylgalactosaminyltransferase II (I) and chondroitin 6-sulfate pentasaccharide .beta.-glucuronyltransferase II (II) are involved in chondroitin sulfate biosynthesis, and transfer an N-acetylgalactosamine (GalNAc) or glucuronic acid (GlcA) residue, resp., through .beta.-linkages to an acceptor **chondroitin oligosaccharide** derived from the repeating disaccharide region of chondroitin sulfate. They were copurified from fetal bovine serum approx. 2500-fold and 850-fold, resp., by sequential chromatogs. on Red A-agarose, phenyl-Sepharose, S-Sepharose, and wheat germ agglutinin-agarose. Identical and inseparable chromatog. profiles of both glycosyltransferase activities obtained through the above chromatog. steps and gel filtration suggested that the **purified** enzyme activities are tightly coupled, which could imply a single enzyme with dual transferase activities: I and II, reminiscent of the heparan sulfate polymerase reaction. However, when a polymn. reaction was performed in vitro with the **purified** serum enzyme prepn. under the polymn. conditions recently developed for the chondroitin-synthesizing system, derived from human melanoma cells, each monosaccharide transfer took place, but no polymn. occurred. These results may suggest that the **purified** serum enzyme prepn. contains both I and II activities on a single polypeptide or on the resp. polypeptides forming an enzyme complex, but is different from that obtained from melanoma cells in that it transfers a single GalNAc or GlcA residue but does not polymerize chondroitin.
REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1985:200042 CAPLUS
DOCUMENT NUMBER: 102:200042
TITLE: Two N-acetylgalactosaminyltransferases are involved in the biosynthesis of chondroitin sulfate
AUTHOR(S): Rohrmann, Kerstin; Niemann, Reinhard; Buddecke, Eckhart
CORPORATE SOURCE: Inst. Physiol. Chem., Univ. Muenster, Muenster, D-4400, Fed. Rep. Ger.
SOURCE: European Journal of Biochemistry (1985), 148(3), 463-9
CODEN: EJBCAI; ISSN: 0014-2956
DOCUMENT TYPE: Journal
LANGUAGE: English
AB N-Acetylgalactosaminyltransferases I and II (I and II, resp.) were **purified** from the microsomal fraction of calf arterial tissue and sepd. on Bio-Gel A. I was **purified** 450-fold. I requires Mn2+ for maximal activity and transferred N-acetylgalactosamine residues from UDP-[1-3H]GalNac in .beta.-glycosidic configuration to the nonreducing terminus of the acceptor substrates, GlcA(.beta.1-3)Gal(.beta.1-3)Gal, GlcA(.beta.1-3)Gal(.beta.1-4)Glc, and GlcA(.beta.1-3)Gal. Even-numbered **chondroitin oligosaccharides** served as acceptors for II,

which transferred N-acetylgalactosamine from UDP-[1-3H]GalNAc to the nonreducing glucuronic acid residues of oligosaccharide acceptor substrates. Max. transfer rates were obtained with a decasaccharide derived from chondroitin. Longer or shorter-chain **chondroitin oligosaccharides** were less affective acceptor substrates. All reaction products formed by I and II were substrates of .beta.-N-acetylhexosaminidase, which split off the transferred [1-3H]GalNAc completely. In the microsomal fraction, II had a 300-fold higher specific activity than I. In contrast to I, II lost much of its activity during purifn., and underwent rapid thermal denaturation. GlcA-Gal-Gal was a characteristic sequence of the carbohydrate-protein linkage region of proteochondrioitin sulfate. The acceptor capacity of this trisaccharide suggested that I is involved in the synthesis of the carbohydrate-protein linkage region. Since II is highly specific for **chondroitin oligosaccharides**, it apparently participates in chain elongation during chondroitin sulfate synthesis.

L17 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1981:116374 CAPLUS
DOCUMENT NUMBER: 94:116374
TITLE: Preparation and circular dichroism analysis of sodium hyaluronate oligosaccharides and chondroitin
AUTHOR(S): Cowman, Mary K.; Balazs, Endre A.; Bergmann, Carl W.; Meyer, Karl
CORPORATE SOURCE: Coll. Physicians Surg., Columbia Univ., New York, NY, 10032, USA
SOURCE: Biochemistry (1981), 20(5), 1379-85
CODEN: BICHAW; ISSN: 0006-2960
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Na hyaluronate was cleaved into a homologous series of oligosaccharides by the action of bovine testicular hyaluronidase (EC 3.2.1.35), an endo-.beta.-hexosaminidase. Digestion conditions and gel-filtration chromatog. fractionation were optimized to produce oligosaccharides, clearly separable into peaks corresponding to 1-23 disaccharide units of the type D-glucuronosyl-N-acetyl-D-glucosamine. The chromatog. method was also employed for the purifn. of a 2nd homologous group of oligosaccharides, with the reversed sequence of monosaccharide units, produced by the action of leech hyaluronidase (EC 3.2.1.36), an endo-.beta.-glucuronidase. CD anal. (in the 200-250-nm range) of the oligosaccharides showed that the CD spectrum of hyaluronate in aq. soln. at neutral pH does not reflect to any substantial degree a polymer conformation which requires cooperative interaction between several repeating residues for stabilization. The enhanced CD properties of hyaluronate relative to monosaccharides are primarily related to the existence of the .beta.-1,4 linkage from N-acetyl-D-glucosamine to D-glucuronate. Chondroitin, the N-acetyl-D-galactosamine analog of hyaluronate, was prepd. by chem. desulfation of chondroitin 4- and 6-sulfates. The **purified** product had a mol. wt. range of 4000-8000 (10-20 disaccharide units). It was digested with testicular hyaluronidase, and the split products were isolated by gel filtration. In contrast to hyaluronate, the cleavage products included both the preponderant analogous repeating disaccharide multiples with N-acetyl-D-galactosamine at the reducing end and smaller quantities of oligosaccharides composed of an odd no. of monosaccharides. These latter products were presumably derived from the ends of the shortened chondroitin chains, resulting from methanolysis during the desulfation and alk. elimination of reducing hexosamines. CD spectroscopic anal. of chondroitin relative to its constituent monosaccharides showed that this glycosaminoglycan does not share the structural feature which results in substantially enhanced CD properties for hyaluronate. A hypothesis relating the CD properties of N-acetylated hexosamines in oligo- and polysaccharides to the dihedral angle about the C-O bond at C3 may explain the CD dependence on both the hexosaminidic linkage and hexosamine

configuration at C4.

L17 ANSWER 4 OF 5 MEDLINE on STN
ACCESSION NUMBER: 1999421651 MEDLINE
DOCUMENT NUMBER: 99421651 PubMed ID: 10491092
TITLE: Purification and characterization of fetal bovine serum beta-N-acetyl-D-galactosaminyltransferase and beta-D-glucuronyltransferase involved in chondroitin sulfate biosynthesis.
AUTHOR: Tsuchida K; Lind T; Kitagawa H; Lindahl U; Sugahara K; Lidholt K
CORPORATE SOURCE: Department of Biochemistry, Kobe Pharmaceutical University, Japan.
SOURCE: EUROPEAN JOURNAL OF BIOCHEMISTRY, (1999 Sep) 264 (2) 461-7. Journal code: 0107600. ISSN: 0014-2956.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199910
ENTRY DATE: Entered STN: 19991026
Last Updated on STN: 19991026
Entered Medline: 19991014

AB beta-N-Acetylgalactosaminyltransferase II and beta-glucuronyltransferase II, involved in chondroitin sulfate biosynthesis, transfer an N-acetylgalactosamine (GalNAc) and glucuronic acid (GlcA) residue, respectively, through beta-linkages to an acceptor **chondroitin oligosaccharide** derived from the repeating disaccharide region of chondroitin sulfate. They were copurified from fetal bovine serum approximately 2500-fold and 850-fold, respectively, by sequential chromatographies on Red A-agarose, phenyl-Sepharose, S-Sepharose and wheat germ agglutinin-agarose. Identical and inseparable chromatographic profiles of both glycosyltransferase activities obtained through the above chromatographic steps and gel filtration suggest that the **purified** enzyme activities are tightly coupled, which could imply a single enzyme with dual transferase activities; beta-N-acetylgalactosaminyltransferase and beta-glucuronyltransferase, reminiscent of the heparan sulfate polymerase reaction. However, when a polymerization reaction was performed in vitro with the **purified** serum enzyme preparation under the polymerization conditions recently developed for the chondroitin-synthesizing system, derived from human melanoma cells, each monosaccharide transfer took place, but no polymerization occurred. These results may suggest that the **purified** serum enzyme preparation contains both beta-N-acetylgalactosaminyltransferase II and beta-glucuronyltransferase II activities on a single polypeptide or on the respective polypeptides forming an enzyme complex, but is different from that obtained from melanoma cells in that it transfers a single GalNAc or GlcA residue but does not polymerize chondroitin.

L17 ANSWER 5 OF 5 MEDLINE on STN
ACCESSION NUMBER: 85203849 MEDLINE
DOCUMENT NUMBER: 85203849 PubMed ID: 3922754
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AUTHOR: Rohrmann K; Niemann R; Buddecke E
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PUB. COUNTRY: GERMANY, WEST: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198507
ENTRY DATE: Entered STN: 19900320

Last Updated on STN: 19900320
Entered Medline: 19850705

AB Two N-acetylgalactosaminyltransferases, designated I and II, have been **purified** from the microsomal fraction of calf arterial tissue and separated on Bio-Gel A. N-Acetylgalactosaminyltransferase I was **purified** 450-fold. It requires Mn2+ for maximal activity and transfers N-acetylgalactosamine residues from UDP-[1-3H]GalNAc in beta-glycosidic configuration to the non-reducing terminus of the acceptor substrates GlcA(beta 1-3)Gal(beta 1-3)Gal, GlcA(beta 1-3)Gal(beta 1-4)Glc and GlcA(beta 1-3)Gal. Even-numbered **chondroitin oligosaccharides** serve as acceptors for N-acetylgalactosaminyltransferase II, which transfers N-acetylgalactosamine from UDP-[1-3H]GalNAc to the non-reducing glucuronic acid residues of oligosaccharide acceptor substrates. Maximum transfer rates were obtained with a decasaccharide derived from chondroitin. Longer or shorter-chain **chondroitin oligosaccharides** are less effective acceptor substrates. All reaction products formed by N-acetylgalactosaminyltransferases I and II are substrates of beta-N-acetylhexosaminidase, which splits off the transferred [1-3H]GalNAc completely. In the microsomal fraction N-acetylgalactosaminyltransferase II had a 300-fold higher specific activity than N-acetylgalactosaminyltransferase I. In contrast to enzyme I, enzyme II loses much of its activity during the purification procedure and undergoes rapid thermodenaturation. GlcA-Gal-Gal is a characteristic sequence of the carbohydrate-protein linkage region of proteochondrioitin sulfate. The acceptor capacity of this trisaccharide suggests that N-acetylgalactosaminyltransferase I is involved in the synthesis of the carbohydrate-protein linkage region. Since N-acetylgalactosaminyltransferase II is highly specific for **chondroitin oligosaccharides**, we conclude that it participates in chain elongation during chondroitin sulfate synthesis.

d his

(FILE 'HOME' ENTERED AT 15:11:28 ON 03 SEP 2003)

FILE 'CAPLUS, MEDLINE' ENTERED AT 15:11:36 ON 03 SEP 2003

L1	0	S	CHRONDROITIN POLYMER
L2	10	S	CHONDROITIN POLYMER
L3	0	S	L2 AND COMPOSITION
L4	7	S	L2 AND CHONDROITIN SYNTHASE
L5	3	S	L2 AND SULFATED
L6	2	DUP REM	L5 (1 DUPLICATE REMOVED)
L7	7	S	L2 NOT L5
L8	8	S	CHONDROITIN POLYSACCHARIDE
L9	6	DUP REM	L8 (2 DUPLICATES REMOVED)
L10	23094	S	CHONDROITIN
L11	35	S	L10 AND CHONDROITIN SYNTHASE
L12	11	S	L11 AND RECOMBINANT
L13	24	S	L11 NOT L12
L14	10	S	L13 AND PASTEURELLA
L15	20	S	CHONDROITIN OLIGOSACCHARIDE
L16	0	S	L15 AND PURIFIED COMPOSITION
L17	5	S	L15 AND PURIFIED

L9 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2002:487738 CAPLUS
DOCUMENT NUMBER: 137:59509
TITLE: DNA and protein sequences of UDP-N-acetylglucosamine 4-epimerase from Bacillus and Neisseria and their uses
INVENTOR(S): Endo, Tetsuo; Koizumi, Satoshi; Tabata, Kazuhiko; Ozaki, Akio
PATENT ASSIGNEE(S): Kyowa Hakko Kogyo Co., Ltd., Japan
SOURCE: PCT Int. Appl., 59 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002050267	A1	20020627	WO 2001-JP11269	20011221
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002025352	A5	20020701	AU 2002-25352	20011221

PRIORITY APPLN. INFO.: JP 2000-388992 A 20001221
WO 2001-JP11269 W 20011221

AB This invention provides the process of prepn. of UDP-N-acetylglucosamine 4-epimerase from Bacillus and Neisseria. The DNA and protein sequences of UDP-N-acetylglucosamine 4-epimerase from Bacillus subtilis and Neisseria gonorrhoeae were disclosed. The invention provides detailed description about plasmid construction for UDP-N-acetylglucosamine 4-epimerase expression in E. coli. The UDP-N-acetylglucosamine 4-epimerase can be used for biosynthesis of UDP-N-acetylgalactosamine and saccharide contg. N-acetylgalactosamine.

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2001:195197 CAPLUS
DOCUMENT NUMBER: 134:227437
TITLE: Biocompatible surfaces comprising **polysaccharide** derivatives and a method for their preparation
INVENTOR(S): Nelson, Deanna J.; Hai, Ton That; Pereira, David E.; Estep, Timothy N.
PATENT ASSIGNEE(S): Baxter International Inc., USA
SOURCE: U.S., 19 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6204254	B1	20010320	US 1997-928841	19970912

PRIORITY APPLN. INFO.: US 1997-928841 19970912

AB A novel group of compds. is disclosed for decorating the surface of synthetic polymeric or tissue derived prostheses to prevent adverse

rejection events. The decorating mols. are obtained as derivs. of naturally occurring **polysaccharides**, derivatized to provide functionally reactive groups at the termini thereof, and the reacting with nucleophilic or other groups on the surface of the prosthesis in a simple one step reaction. Some of these reagents are useful in noncovalent adsorption to polyolefinic or perfluorocarbon based materials. Finally, phospholipids partially substituted with the nonantigenic **polysaccharides** provide a superior bipolar component for liposome formation. **Chondroitin** sulfate-modified-distearoyl phosphatidylethanolamine (I) was prepd. by reaction of **chondroitin** sulfate-CO-N-oxysuccinimide with lyso-distearoyl phosphatidylethanolamine. Liposomes were prepd. by micro-fluidization (emulsification) of a compn. of I/hydrogenated soy phosphatidylcholine/cholesterol in molar proportions of 5:55:40, resp. It is anticipated that the blood circulation half-lives of the biocompatible liposomes will be significantly longer than those of liposomes formulated without the I.

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1999:77464 CAPLUS
DOCUMENT NUMBER: 130:158447
TITLE: Therapeutic hemoglobin-**polysaccharide** complexes having isotropically increased size and masked antigenicity
INVENTOR(S): Hai, Ton That; Pereira, David E.; Nelson, Deanna J.
PATENT ASSIGNEE(S): Baxter International Inc., USA
SOURCE: PCT Int. Appl., 51 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9903484	A1	19990128	WO 1998-US12941	19980622
W: AU, CA, JP				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 5981710	A	19991109	US 1997-896743	19970721
AU 9881586	A1	19990210	AU 1998-81586	19980622
AU 742849	B2	20020117		
EP 1017405	A1	20000712	EP 1998-931462	19980622
R: DE, FR, GB				
JP 2001510202	T2	20010731	JP 2000-502782	19980622

PRIORITY APPLN. INFO.: US 1997-896743 A 19970721
WO 1998-US12941 W 19980622

AB Novel **polysaccharide** compds. are disclosed for decorating biomol. surfaces to increase isotropic size and mask antigenicity. The oligosaccharides may be synthesized as repeating disaccharide units, or may be derived by acid hydrolysis of naturally occurring **polysaccharides**. Such natural sources include **chondroitins** obtained from shark cartilage, or hyaluronic acid. The polyanionic sulfate groups contained in the sugar moieties impart neg. charges which repel the mols. from the neg. charged wall of capillaries, to lengthen retention times of decorated drug mols., such as cross-linked Hb, in the peripheral circulation.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1996:72306 CAPLUS
DOCUMENT NUMBER: 124:110772

TITLE: Biosynthesis of dermatan sulfate. Defructosylated Escherichia coli K4 capsular **polysaccharide** as a substrate for the D-glucuronyl C-5 epimerase, and an indication of a two-base reaction mechanism
AUTHOR(S): Hannesson, Helgi H.; Hagner-McWhirter, Asa; Tiedemann, Kerstin; Lindahl, Ulf; Malmstroem, Anders
CORPORATE SOURCE: Dep. Med. Physiological Chemistry, Univ. Uppsala, Uppsala, S-751 23, Swed.
SOURCE: Biochemical Journal (1996), 313(2), 589-96
CODEN: BIJOAK; ISSN: 0264-6021
PUBLISHER: Portland Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The capsular **polysaccharide** from Escherichia coli K4 consists of a **chondroitin** {[GlcA(.beta.1.fwdarw.3)GalNAc(.beta.1.fwdarw.4)]n } backbone, to which .beta.-fructofuranose units are linked to C-3 of D-glucuronic acid (GlcA) residues. Removal of the fructose units by mild acid hydrolysis provided a substrate for the GlcA C-5 epimerase, which is involved in the generation of L-**iduronic acid** (IdoA) units during dermatan sulfate biosynthesis. Incubation of this substrate with solubilized fibroblast microsomal enzyme in the presence of 3H2O resulted in the incorporation of tritium at C-5 of hexuronyl units. A Km of 67.times.10-6 M hexuronic acid (equiv. to disaccharide units) was detd., which is similar to that (80.times.10-6 M) obtained for dermatan (desulfated dermatan sulfate). Vmax. was about 4 times higher with dermatan than with the K4 substrate. A defructosylated K4 **polysaccharide** isolated after incubation of bacteria with D-[5-3H] **glucose** released 3H2O on reaction with the epimerase, and thus could be used to assay the enzyme. Incubation of a K4 substrate with solubilized microsomal epimerase for 6 h in the presence of 3H2O resulted in the formation of about 5% IdoA and approx. equal amts. of 3H in GlcA and IdoA. A corresponding incubation of dermatan yielded approx. 22% GlcA, which contained virtually all the 3H label. These results are tentatively explained in terms of a two-base reaction mechanism, involving a monoprotic L-ido-specific base and a polyprotic D-gluco-specific base. Most of the IdoA residues generated by the enzyme occurred singly, although some formation of two or three consecutive IdoA-contg. disaccharide units was obsd.

L9 ANSWER 5 OF 5 MEDLINE on STN
ACCESSION NUMBER: 96152546 MEDLINE
DOCUMENT NUMBER: 96152546 PubMed ID: 8573097
TITLE: Biosynthesis of dermatan sulphate. Defructosylated Escherichia coli K4 capsular **polysaccharide** as a substrate for the D-glucuronyl C-5 epimerase, and an indication of a two-base reaction mechanism.
AUTHOR: Hannesson H H; Hagner-McWhirter A; Tiedemann K; Lindahl U; Malmstrom A
CORPORATE SOURCE: Department of Medical and Physiological Chemistry, University of Uppsala, Sweden.
SOURCE: BIOCHEMICAL JOURNAL, (1996 Jan 15) 313 (Pt 2) 589-96.
Journal code: 2984726R. ISSN: 0264-6021.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199603
ENTRY DATE: Entered STN: 19960315
Last Updated on STN: 19980206
Entered Medline: 19960301

AB The capsular **polysaccharide** from Escherichia coli K4 consists of a **chondroitin** ([GlcA(beta 1-->3)GalNAc(beta 1-->4)]n) backbone, to which beta-fructofuranose units are linked to C-3 of D-glucuronic acid (GlcA) residues. Removal of the fructose units by mild acid hydrolysis

provided a substrate for the GlcA C-5 epimerase, which is involved in the generation of L-**iduronic acid** (IdoA) units during dermatan sulphate biosynthesis. Incubation of this substrate with solubilized fibroblast microsomal enzyme in the presence of 3H2O resulted in the incorporation of tritium at C-5 of hexuronyl units. A Km of 67 x 10(-6) M hexuronic acid (equivalent to disaccharide units) was determined, which is similar to that (80 x 10(-6) M) obtained for dermatan (desulphated dermatan sulphate). Vmax was about 4 times higher with dermatan than with the K4 substrate. A defructosylated K4 **polysaccharide** isolated after incubation of bacteria with D-[5-3H] **glucose** released 3H2O on reaction with the epimerase, and thus could be used to assay the enzyme. Incubation of a K4 substrate with solubilized microsomal epimerase for 6 h in the presence of 3H2O resulted in the formation of about 5% IdoA and approximately equal amounts of 3H in GlcA and IdoA. A corresponding incubation of dermatan yielded approx. 22% GlcA, which contained virtually all the 3H label. These results are tentatively explained in terms of a two-base reaction mechanism, involving a monoprotic L-ido-specific base and a polyprotic D-gluco-specific base. Most of the IdoA residues generated by the enzyme occurred singly, although some formation of two or three consecutive IdoA-containing disaccharide units was observed.

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(FILE 'HOME' ENTERED AT 17:40:31 ON 04 SEP 2003)

FILE 'CAPLUS, MEDLINE' ENTERED AT 17:40:41 ON 04 SEP 2003

L1	0	S	CHONDROITIN EPIMER
L2	1	S	EPIMERIZATION OF CHONDROITIN
L3	23106	S	CHONDROITIN
L4	1	S	L3 AND EPIMERS
L5	1158	S	IDURONIC ACID
L6	104	S	L5 AND GLUCOSE
L7	21	S	L6 AND POLYMER
L8	31	S	L6 AND POLYSACCHARIDE
L9	5	S	L8 AND CHONDROITIN